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Archives of Pediatrics:

A MONTHLY JOURNAL DEVOTED TO THE DISEASES OF

Infants and Children.

EDITED BY

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LIST OF ILLUSTRATIONS.

	PAGE
Northrup's specimen from a case of infantile scurvy.....	9
Shepherd's operation for umbilical fæcal fistula.....	57
Holt's temperature, chart, severe catarrhal laryngitis	129
Edward's remarkable respiration record in infantile pneumonia....	201
Incubators (artificial maternities).....	225
Holt's temperature charts in acute primary nephritis.....	264, 269
Dessar's curette for removing adenoid vegetations.....	374
Wollstein's pathology of croupous gastritis.....	495
Bradford's microscopy of an abdominal tumor.....	510
Ridlon's cases of congenital dislocation at the hip.....	605, 606, 607
Huber's tracheal and bronchial (diphtheritic) casts... ..	684, 685
Thomson's case of chronic internal hydrocephalus.....	774, 775, 776
Townsend's case of sporadic cretinism.....	827
Mansel's case of alopecia of the entire scalp.....	841
Huber's case of sacro-coccygeal tumor.....	896

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ARCHIVES OF PEDIATRICS.

VOL. IX.]

JANUARY, 1892.

[No. 1.]

Original Communications.

SCORBUTUS IN INFANTS; AMERICAN CASES.*

(ILLUSTRATED.)

BY WILLIAM P. NORTHRUP, M.D.,

Pathologist to the New York Foundling Hospital.

THE object of this paper is to present some cases of infantile scurvy occurring in this country, and to intimate something regarding their frequency of occurrence. As to the essential nature of the disease there is no positive recent contribution to literature, nor has the writer anything new to offer. After the valuable papers on scurvy in children to be found in *Keating's Cyclopædia*, and in that most admirable book of Eustace Smith's, there remains nothing to say until some investigator shall announce the long hidden secret of the essential causative factor which gives rise to the lesions which we, by common consent, denominate scurvy—be it in infants or adults.

The first case reported in this paper is so typical in lesion, course and symptomatology; in its ætiology so suggestive and in its treatment so successful; in short, so typical and instructive is the case, that it has seemed best to the writer to set it forth in detail, with the statement that it illustrates nearly every point mentioned in the two articles referred to above. As these volumes are probably in the library of every member of this section, it is

* Read before the American Pediatric Society, Washington, D. C.,
Sept. 24, 1891.

useless to duplicate words. If it shall appear that scurvy in children is not of frequent occurrence, there is yet a certain advantage in considering such cases, especially if they are liable to spring up in the path of the general practitioner at any turning.*

CASE I.—*Typical; scurvy occurring in rich surroundings; recovery; patient aged sixteen months.* In the midst of a pouring rain on a Sunday morning, a carriage drew up to the curb, the bell gave two quick jumps and in a few minutes a man was marching up and down the office floor. The cause of his nervousness was quickly announced. His second child, an infant, had rheumatism and had become no better during the fortnight's sojourn of himself and wife in a neighboring capital. The child in their absence had been in the care of an old nurse, so gifted in the art of nursing and, I may add, in self-conceit. On his return home the previous evening, the infant was not well. It was not very sick, so he thought, when he went away, and by this time he supposed it would have entirely recovered—instead, it was worse. He sent for the doctor and, in his anxiety, desired an immediate consultation. His family physician was among the ablest practitioners in New York; he had not been called to the child within a week; had not been informed by the nurse, if indeed he had not been misled by her. The history of many cases can be written backwards better than consecutively, and the present one is of this character. Suffice it to say, in preface, the diagnosis was rheumatism and the treat-

* *Scurvy*, by Thos. Barlow. *Cyclopædia of the Diseases of Children*, Keating, vol. ii., page 277.

CONCLUSIONS—(CHARACTERISTICS.)

"(1). Predominance of lower-limb affection; (*a*) immobility; (*b*) excessive tenderness; (*c*) general swelling of lower limbs; (*d*) skin shiny and tense but seldom pitting and not characterized by undue local heat; (*e*) on subsidence, revealing a deep thickening of the shafts; (*f*) liability to fracture near epiphyses.

"(2) Swelling of the gums, varying from definite sponginess down to a vanishing point of minute transient ecchymosis. . . .

But to them must be added as:

"(3). The most diagnostic of all, definite and rapid amelioration by antiscorbutic regimen."

ment had embraced salicylic acid and tincture of iron, without success.

At the time of the consultation the father and mother of the little patient were present; both were within the thirties, healthy and vigorous, the father looking like a hardy yachtsman. The family history on both sides was good. The family were luxuriantly housed in the most hygienic surroundings of up-town New York. In short, the infant, whose history we are going to consider, who was suffering from malnutrition, from "insufficient and poor food," to quote words so often used in connection with children's diseases, was the offspring of wedded representatives of two rich and powerful families in the fashionable and political world of the great metropolis. There was no lack of love and devotion on the part of parents or grandparents. The lack was in wisdom and judgment, the abundance, the nurse's self-esteem and ignorance; these allowed the present case and history to continue on to full accomplishment.

The child at this time was sixteen months old; was the second born; a female; thriving very well in the early months of life; at the fourth month the mother's milk failed to be of sufficient quantity and quickly, thereafter, ceased altogether. The first born is still living and robust; the mother's milk had after a few months been insufficient for it, but the child continued to thrive. After the failure of the mother's milk, in our patient's case, one of the proprietary foods was given her. By some misunderstanding this food was diluted with water and milk, the proportion of the latter being too small. For a time the child thrived very well, apparently, though it was rather backward about walking and talking. Its digestion was good, its bowels reasonably satisfactory and it seemed satisfied with its food. It never gave any evidence of rickets; teeth in usual quantity made their appearance at the usual time.

Three weeks before the visit spoken of (this fact was subsequently elicited after questioning both parties) the nurse had noticed some *change in the child's gums*,

After reflecting a week upon this she called the attention of the mother to the same. The change was not marked. While on a visit to another patient in the household, the doctor's attention was called to the child as he was hurrying out to his carriage. The baby was reported as not quite well and nothing was said concerning the gums. He hastily looked her over, learned of the misadventure with the proprietary food, added the requisite amount of milk to bring it up to the prescribed standard, ordered beef-broth, iron peptonate, and was gone.

One week later than this, the patient developed *trouble in the right lower limb*, evidenced by worrying, sensitiveness on handling and tendency to keep the limb nearly straight. Anti-rheumatic remedies were prescribed. There seemed no reason why the case should not speedily come out of its condition of slight depression, now that the food was improved and treatment instituted.

During the succeeding week very little is known concerning the child; the parents were absent from home; the family physician was not called; the nurse drew no conclusions from the, now rapidly-changing gums, and as to the rheumatism, the progress was slow. It is not difficult for physicians to understand how this infant, once started on its career of malnutrition, could even in the house of luxury, under these circumstances, develop ripe symptoms. At this juncture the parents returned home to find the rheumatism worse, instead of cured, and a hasty muster of physicians was the result.

The child cried on seeing a strange face, becoming alarmed also for the safety of its lame leg. In the wry face of crying, the little patient fairly *unbuttoned* from between its lips two rows of irregularly nodulated, purplish gums, from the summits of which the points of its teeth fairly protruded. *In the upper spongy row was a depression with ulcerated walls and sloughing shreds. The gums were dark and bled freely* in the act of crying, from compression of the lips alone. There was nothing further abnormal about the face beyond a worried expression; no ecchymoses; no

petechiæ; conjunctivæ were normal; no evidence of unhealthy condition of the mucous membrane of the nose. There was no history of nose-bleeding, no hæmaturia, no hæmorrhages from the bowels. The child was now stripped of all clothing and laid on its back on the bed. It continued to whimper, throw its arms about freely, draw up its left leg; as for its right, it could move it slowly, but only a little, and could not be induced to flex it. The *right thigh was somewhat larger than the left*, to observation; by measurement it showed a difference of about two and a half inches, which, considering the thin thighs of the small patient, augured a marked difference. The enlargement was fusiform, greatest just above the knee. Apart from the *spongy gums and swollen thigh* there were no external manifestations.

The diagnosis of this case is scorbutus; what confirmation of this diagnosis can be offered? The answer is, the success in treatment.

The child was removed at once to the country, its proprietary mixture was stopped and in its place were given fresh cow's milk, expressed juice of beef, baked potatoes, also citrate of iron with excess of citric acid. The one thing which this scurvy case seemed to crave, for which it reached out, which it seized with ravenous avidity, was *orange*. The child could hardly be restrained till it held the fruit in its grasp; and then proceeded to souse its lips and nose in the juice. Improvement began at once; in five days its gums were markedly better, in ten entirely normal. As for its thigh, at the end of ten days the improvement was marked both in sensitiveness and size, and a month later the child was standing on its feet. A slight thickening over the femur could be detected for a few days, at the end of which time, the patient seemed absolutely well. "Now," to quote the words of the latest report, "she would strike you as a child small for her age simply, nothing having ever been the matter with her."

Several points may be learned by reading between the lines in this case. As Dr. Charles McBurney once

very aptly said, speaking of the value of original investigation: "There is also great value in *re*-search." At least we may argue, that in cases of spongy gums and pains in the knees it is well to consider the diagnosis of scurvy. A certain amount of sinister interest attaches to the fact that this child was vaccinated a month before the first symptoms appeared, and all medical men connected with the case were catechised as to the near or remote possibility of its causal relation to the lesion of the gums and thighs. It was, by the way, vaccinated on the leg. Needless to add, its course was perfectly typical for an effective inoculation and was followed by speedy healing.

To entirely complete the disease-picture given us by the English authorities, nothing is required but the post-mortem findings, which the following cases furnish.

CASE II.—*Fatal scurvy in a child of eighteen months; Autopsy.**

This child was an inmate of the New York Foundling Hospital and was what is called a "nurse-baby," that is, she was nursed by a mother who, in addition to her own baby, nursed a second of about equal age. Her own child thrived; the second furnishes this example of malnutrition and the pathological specimen which is here shown. The nurse was said to be very fond of the child and "took on" when it sickened and died. Since we are considering a case of scurvy developing in a breast-fed (*sic*) child it is well to bear in mind the above facts and the added fact that nearly all babies nursing two at one woman require to be fed more or less. We are justified in forming our own conclusions as to which was fed more and which less; we know which baby was hers and which was not, which thrived and which developed fatal scurvy; we also have our notions of the tendencies of maternal instincts. However, the history must be recorded as

* Reported in Proceedings of the N. Y. Pathological Society, 1889, pp 66-67.

those in charge of the case furnish it, and it reads, "the child was wet-nursed the first sixteen months of its life."

Briefly the history of the illness was as follows: This female child when sixteen months old was observed to be failing, and as the history reads, "on account of impaired nutrition was taken from the breast and was given vegetable acids." In the seventeenth month of life, which was one month before death, the right leg and knee became swollen and tender. Temperature was 101° F. After two days the symptoms seemed temporarily to disappear. Two weeks before death and six weeks since the weaning, the child appeared to be very sick, her gums were swollen, smoky-black and bled freely; two days later her left eyelid became swollen, black, having the appearance of the classical "black eye." Temperature thus far continued about 101° F. One week later there developed the physical and rational signs of pneumonia. At this time her other eyelid became ecchymotic and the other thigh markedly swollen.

During the remaining days of life the small patient became excessively anæmic, having a metallic pallor, which gave a particularly wretched appearance with the contrasting ecchymoses about the eyes. Her passages were black and pasty; no petechiæ; the child failed rapidly and died with pronounced symptoms of pneumonia.

Autopsy.—The main interest lies in the condition of the legs. As regards the organs, it is sufficient to say there were no hæmorrhages; extensive pleuro-pneumonia of left side. Left thigh symmetrically enlarged, larger than the right, though both were obviously above normal in size. Left femur was, at its upper extremity, normal, epiphysis and end of shaft. The lower half was invested about with a black grumous subperiosteal layer of blood having a thickness of two to three millimeters. The lower epiphysis was detached, the lower end of the shaft macerated, eroded and soft, lying loose in the

black disintegrating blood-clot. The femur of the companion leg was surrounded for its lower two-thirds by a thinner, black, subperiosteal blood-layer—(See illustration).

The lower epiphysis was not detached though both it and the shaft were congested. No hæmorrhage into any joints. The right and left tibiæ were surrounded by a thin, dark hæmorrhagic layer beneath the periosteum and the proximal portions of both were congested. The fibulæ, likewise the bones of the upper extremities, were normal.

The accompanying illustration is drawn from a specimen which consists of a lateral half of the lower limb of the side less affected.

Microscopical examination of the bone disclosed no syphilitic or rhachitic changes, and no inflammatory changes in bone or periosteum. The softened, macerated bone gave no evidence of suppuration; moderate congestion of the fellow femur and the upper extremities of the tibiæ.

CASE III.—Dr. Richard Van Santvoord has reported* the autopsy of a helpless idiot, six years of age, in whom extensive hæmorrhage, with separation of both upper epiphyses, had occurred under the periosteum of the upper halves of both humeri. This hæmorrhage was apparently the immediate cause of death. The case was regarded by him at the time as probably traumatic. Reports that he had subsequently seen of extensive subperiosteal hæmorrhage, with epiphyseal separation, had been regarded by their recorders as scorbutic. He had become convinced that his own case belonged under that heading. Gums were not mentioned as being involved.

CASE IV.—Dr. August Caillé contributes for use in this paper, an *autopsy* record of a typical case of scurvy—autopsy by himself. He says:—"In addition to the external appearances there were subcutaneous effusions of

*Ibid.



[Drawn from Specimen by H. McDONALD, M.D.]

Specimen from a case of Infantile Scurvy, showing subperitoneal hemorrhage about femur and tibia of the side less affected.

blood, hæmorrhagic spots on divers mucous and serous membranes, swellings at the joints and subperiosteal effusions of blood at the epiphyses."

The three last narrated cases furnish the only autopsies the writer has been able to collect. Bearing in mind the complete picture of disease furnished by the previous cases, let us consider the following ;

CASE V.—Dr. Chas. H. Richardson of the North Eastern Dispensary—children's class—has furnished the following most interesting and illustrative case.

Anne K., aged twelve months, was brought to the dispensary by its mother with the history of "failing" for nearly two months. The child was healthy for some time after birth, when the mother was obliged to work, and of necessity the baby was "farmed out." She reported the food as having been condensed milk, adding the somewhat ambiguous item, "and what was going."

The child had recently vomited blood, passed blood from the bowels and presented petechial spots of subcutaneous hæmorrhage. The gums were slightly softened and according to the mother's account the inside of the mouth had been black. Both legs were enlarged to considerably more than double their normal size. Epiphyseal ends showed marked enlargement. Limbs very tender, hard and pitted slightly on pressure."

"Head sweats. Temp., $100\frac{4}{5}^{\circ}$. Tendency to spinal curvature in dorsal region."

To continue the verbatim quotation of the doctor's letter :—"I considered this a combination of scurvy and rickets and put the child on a live diet of fresh milk, orange and lemon juice." Three days from the first observations and prescription the purpuric spots had mostly disappeared, and no new ones had occurred. The child seemed slightly better ; there was no vomiting, yet the condition of the limbs was unchanged and the temperature continued slightly elevated as before.

The following paragraph gives the case an added interest and accuracy : "The swelling of the limb being due to

subperiosteal hæmorrhage, added to subcutaneous œdema, I wished to see the character of the effusion next the bone. I thereupon passed an aspirating needle down to the femur and drew off some of the effused fluid. It consisted apparently of pure blood, which microscopically showed the red globules, somewhat ragged and disintegrated, and the white ones somewhat increased in number."

At this point the case escaped from observation and the history ends.

CASE VI.—Dr. Hermann Goldenberg, at his class in the Mt. Sinai Hospital Dispensary, observed the following case of scurvy :

A boy, two years old, was brought in by his father, who stated that the patient had been well up to a few days previous, when he noticed red spots over all his body, swelling of the legs, bleeding from the mouth, bowels, nose ; also hæmaturia. The food of the child consisted exclusively of milk.

The family history was good ; a number of older children were strong and healthy ; no malaria ; no syphilis. To quote Dr. Goldenberg literally :—"I found a hæmorrhagic eruption in nodes, spots and large patches, up to the size of a palm of a hand, on face, trunk and extremities. The hæmorrhagic character was clearly demonstrated by the fact that the redness remained on pressure, and the changes in color, within a few days. The gums had the characteristic color and form, as in scurvy. There were gangrenous spots in pharynx and on tonsils, swelling of the feet and legs and of the scrotum, through extravasations into subcutaneous tissue. Fœtor of the mouth ; urine which the father brought was bloody ; general malaise. No signs of rickets." Dr. Goldenberg presented this case before the Mt. Sinai Alumni Association as a characteristic case of scurvy. It was accepted as such. One member temporarily dissented, preferring to call it hæmorrhagic urticaria. The patient was on the following day sent to Dr. Jacobi, who confirmed the diagnosis and pronounced the case scorbutus. Lemon juice, fresh vegetables, potassium chlorate, internally and

as gargle, were ordered and within a few days the child was well.

CASE VII.—The following case was narrated to the writer by the physician to the child, whose case was first narrated. The patient was a boy sixteen months old; the fifth child of a father, of high rank in the army, having a physique which the doctor fittingly typified as by the word “bull”; the mother was a delicate woman; its four or five brothers and sisters were all delicate. The child was well housed and cared for, or to use the words of the narrator, “over-cared for”; was wetnursed for a few days only. Thereafter, it was fed on a proprietary food. Up to the sixteenth month of life it seemed to be well nourished and attain good development. At last, its gums became spongy, then its right ankle became swollen, discolored, bluish, tender, fluctuating. This patient was seen by an able consultant, an honored member of this society, and pronounced rickets—probably meaning *acute rickets*.

On a treatment of lime, muriatic acid and tincture of iron the child slowly and gradually recovered. The symptoms in this case were spongy gums and hæmorrhages about one ankle. No mention is made of petechiæ.

CASE VIII.—Dr. Delafield furnishes the following interesting case. In the month of June, a child about three years old, suffering from obstinate diarrhœa, was brought to him for consultation. He prescribed an exclusive meat diet and advised the parents to take it at once into the country. They did as directed, and the child speedily recovered. So pleased were the parents with the prompt effect of the diet in the pronounced improvement of the patient that they believed they had learned a valuable secret for securing the continued health of the child.

They, without hesitation, settled down to a rigid *regime* of exclusive meat food. This they followed conscientiously for two or three months. In the last of September, the condition of the child induced them to return to town and again consult Dr. Delafield. This time the pa-

tient presented a characteristic case of scorbutus. To use the words of the narrator: "The diagnosis was perfectly clear; had characteristic signs of scurvy." On a rational diet all symptoms quickly disappeared and the child became quite well.

CASE IX.—A letter from Dr. L. Emmett Holt gives the following: "Some points regarding a scorbutus case; the first symptoms appeared in the latter part of April, the infant being at that time eleven months old, and having had all the symptoms of extreme marasmus for several months. From the latter part of February she had been upon an exclusive diet of a proprietary food. There was first noticed a swelling of left knee resembling in general appearance that due to articular ostitis; a week or more later the gums were spongy, purplish, and slight hæmorrhages occurred from time to time. The swelling about the knee increased steadily during the next six weeks until it was fully four inches in diameter; the swelling extended up to the middle of the thigh; there was extreme tenderness and later a slight purplish discoloration of the skin. Exploratory puncture gave blood only. The child died on June 23d. The above symptoms continued together with those of extreme anæmia and exhaustion; there was a slight fever for the last two months; at no time was there any ecchymoses beneath the skin. At the autopsy the swelling of the limb was found to be due to subperiosteal hæmorrhages, the bone being surrounded by a mass of old blood-clots; the periosteum was extensively stripped up; there was complete separation of the lower epiphysis of the femur.

CASE X.—Dr. W. F. Lockwood, of Baltimore, furnishes the following: we quote the letter in full, verbatim.

"Aug. 12th.—Mrs. W——, whose family had been in the country during the warm weather, asked me to visit her child, thirteen months old. She stated that it had been ailing for some weeks with diarrhœa varying in severity, but never entirely relieved. Of late she had thought the child suffered pain in its lower limbs, that it screamed in an unusual way at night, especially when moved or

touched, and that there was increased fretfulness during the day. She referred also to some spots 'like old bruises' on its legs below the knees, more marked on the right.

"It had been nursed until six months old, after which time it had taken almost exclusively a proprietary food.

"Examination showed the child fairly well nourished, rather anæmic, complexion sallow. No evidence of rickets, no swelling along shaft, or enlargement at ends of bones. Ill defined ecchymotic spot on left leg, but plainer on the right. The right leg semi-flexed and everted. No tenderness manifested on gentle manipulation of body or limbs. Gums showed dusky purplish fold at root of each tooth. They had bled occasionally for some weeks and the stool had pretty constantly been streaked with blood. Pulse and temperature were normal.

The diagnosis was made of scorbutus and directions were given to change the diet to fresh milk undiluted, potato and orange or peach juice. A few days after my visit the mother reported the child improved in every way. The diarrhœa had stopped and there was no screaming or restlessness at night. A second visit was not required and the improvement, I have heard, has continued."

CASE XI.—Dr. G. H. Whitcomb, of Greenwich, N. Y., has, since the writing of this paper, published a most illustrative case [*Archives of Pediatrics*, Oct. 1891, p. 760, of *Artificial Baby Food and Scorbutus.*] The child was eleven months old; after fifth month was fed exclusively on artificial food, during which time it grew very fat, "seemed to thrive famously." "When a little over ten months old she became petulant, and evinced a disinclination to move or be handled. The legs were partially flexed and remained rigid. Any attempt to straighten them elicited screams. The gums were spongy and bled frequently; muscular pains were so severe as to deprive the child of rest." "The physician at that time in charge diagnosed and treated rheumatism. . . . After ten days the family went to Rome, . . . where the diagnosis of rheu-

matism was approved and alkaline treatment pursued for two weeks, after which they came to Greenwich."

In Dr. Whitcomb's graphic account occur such expressions as the following : " screamed when handled . . . limbs resembled Bologna sausages . . . gums were spongy, ecchymotic blebs discharging sero-sanguinolent fluid . . . seven teeth . . . *no evidence of rachitis.*" Treatment comprised fresh milk, rare-broiled beefsteak and sweet oranges.

In three weeks the child was restored to complete health. The doctor believes the scorbutus to have been caused by the exclusive use of the prepared food and he concludes that "no cereal or chemically prepared food can nourish perfectly," and should be supplemented with fresh milk, meat and fruit juices.

During the summer just past, the writer has had opportunity in three great medical centres, personally, to compare notes on the subject of scorbutus in young children.

Prof. Ranke, of Munich, said that with him it was "in the highest degree of rare occurrence." He could not at once recall a case.

The assistant of Prof. Widerhofer in Vienna, Dr. Karl Foltanek, at that moment surrounded by a throng of wretched out-patients at the children's hospital, declared that in his experience, and it must be considered a colossal experience, "scorbut" in children was "ungeheuer selten."

Dr. John Abercrombie, of Great Ormond street Children's Hospital, in London, believed it not frequent, though it did occur and was due to patent prepared baby foods. In a subsequent conversation with the house physician, in answer to the question—to what is scorbutus among children commonly attributed in this hospital—he promptly gave the name of a proprietary food which is advertised upon and within every omnibus in London, at every railway station in all England, and whose name glares at one from the back cover of every sixpenny novel. This point will be of interest to our worthy and honored

president. Well do we remember his able plea before the Academy of Medicine in New York, that the tender life of the children of this country might be emancipated from the thrall of enterprising pap-peddlers. It is a significant fact that the country which furnishes most of the literature of scorbutus in children is the same which is posted from end to end with advertisements of proprietary foods.

As to the frequency of scurvy in America, Dr. Roger S. Tracy, Register of Vital Statistics of New York Board of Health, has very kindly copied off for the writer all deaths reported under scurvy from 1870 to 1890. In this twenty years, there have been 100 deaths from scurvy, reported to the office, of which sixteen have been in patients of five years or under. Of the sixteen fatal cases in children, twelve have been in infants (under two years of age). So it comes about, that of the class of cases which we are here and now considering, sixteen have been reported among the deaths of the last two decades in the City of New York. Some have doubtless gone astray in the records, because scurvy has been little considered and less thought of among the derangements of childhood and infancy; many of them, no doubt, have found their way to the list of purpura and acute rickets, some to hæmorrhagic exanthemata.

Surgeon J. S. Billings, librarian of the Surgeon-General's office, has kindly furnished seven references to cases of scurvy in children and infants. The first five cases are from England, the sixth from France and the seventh from America. This case on examination is not considered scurvy by the writer.

It would seem that England, and that means London in this case, is the source of most of the cases, and of the literature, of scurvy in children. To W. B. Cheadle and Thomas Barlow of Great Ormond street Hospital, is due the credit (the former) of "having first shown on clinical grounds the true affinities of this form of infantile cachexia," and (the latter) the anatomical nature of the diseases determined by post-mortem examination. Scurvy

is not in the index of Meigs' & Pepper's Diseases of Children (Edition, 1883); nor does it appear in the last edition of J. Lewis Smith's book.

The writer has held correspondence with twenty-five persons, members of this Pediatric section, and others, in New York and different large cities; the purpose has been to unearth any cases of infantile scurvy unreported and to learn the opinion of the gentlemen as to its frequency of occurrence. The answers have been prompt, to the point, of great service to the writer, and he here desires to express his obligations. All of these correspondents have vast opportunities for seeing cases in dispensaries, hospitals and asylums, as well as private practice. The majority of the answers contain such words (and with relief and satisfaction we record it) as "rare in children." "I know of very few cases of scorbutus"; "have thus far not seen any case of scurvy in children." "Have never recognized a case . . . nor do I know of any recognized case." "Have never seen a case in children in this city nor at the Juvenile Asylum where I pass in review 1,000 annually, and many are from the 'slums.'" "I think the cases extremely rare." "Cases of scurvy in children I have not seen." "During a service of two years, in which time 1,600 children have been seen, I have not met a single case of scurvy."

The purpose of this paper has been so modest that it may fairly be assumed that that purpose has been attained. Cases have been collected—eleven of them—and with pains to make the number represent the approximate frequency of occurrence. We must now await the report of the investigator for the intimate essential cause of the various lesions of scurvy. It is not a question of opinion; it is a question of facts. The whole line of sturdy soldiery must await the arrival of the aid who brings a message from him who holds his council amid culture ovens and flasks, dry plates and oil immersions.

So many apparent causative elements enter into the hæmorrhagic diseases and blood-dyscrasia, from drugs to bad food, that it seems idle to recount them; they rest

just where they did decades ago. The germ investigations have not rendered a final answer, though they seem soon to explain some of the group.

Finally, to dwell on such a topic as the present, to bring together rather more cases of scurvy than one expects are to be found, to, in a certain way, apply for the admission of a new disease into American literature, is somewhat similar to the player's role of villain; he may set forth upon the boards a most excellent villain, but after all, it is a gruesome business.

DISCUSSION.

DR. HOLT.—I have recently seen one case quite typical in its symptoms in which the diagnosis was confirmed by an autopsy. The history of Dr. Northrup's fatal case is almost the same as that of my case, and the lesions precisely those described by him. (See Case IX.)

DR. ROTCH.—That is to say, one of the starchy foods.

DR. NORTHROP.—I should say not a food at all, but a *preparation*.

DR. ROTCH.—I would suggest here, in view of possible law-suits, the avoidance of the term "patent food." The manufacturers insist that it is not patent, but it is proprietary.

DR. NORTHROP.—I should not call it a food at all, but a proprietary *mixture*.

DR. FRUITNIGHT.—In the last few weeks I have run across a case of this kind. She was a girl of five years belonging to the middle classes, but who having abundant food from some freak would not and did not eat any vegetables. The child had been sick about three weeks when I first saw her. The gums were spongy, tender and bleeding very readily. There were fugitive pains throughout the body, an herpetic eruption and some œdema of the left leg were present, with tenderness near the condyles of the flexors. The patient was put upon iron citrate, acid fruits and vegetable food and shortly recovered. In a large experience of many years this is the only case which I have seen. Furthermore, at the St. John's Guild Seaside Hospital, we have never seen a case of scorbutus, although, the number of cases treated is exceedingly large, and they are drawn from the poorest classes in the city, among whom, nutritious and milk food is lacking.

DR. JACOBI.—In Dr. Northrup's paper, replete with so much information, I missed one important fact, that is, the definition of what he means by scurvy. Is scurvy a complex of symptoms, the principal one being hæmorrhage, including hæmorrhage of the gums? Is the bleeding from the gums the characteristic feature of scurvy? This has been claimed, but, perhaps, incorrectly. Among the few cases related last year in Berlin, by Rehn, six had this symptom, one did not. Still it was claimed to be and was a case of scurvy. I have seen a case in a baby of five months in which there was no bleeding from the gums. The presence of the teeth may have something to do with the bleeding. My experience has been: no teeth, no bleeding from the gums. Ulcerous stomatitis, that form which I believe was first described in 1832 and which consists in the breaking down of the part of the gums adjoining the teeth, sometimes including the canine, is seen only in babies with teeth. Perhaps this disease has something to do with the anatomical condition around certain classes of teeth. In regard to the diagnosis and definition, it appears that no one has said up to this time what scurvy is. Many good and valuable writers are not able to say whether scurvy differs in any way from other hæmorrhages. I refer for instance, to that elaborate volume of W. Koch's, in *Deutsche Chirurgie*; it is entitled "Scurvy," and I find a few hundred pages on scurvy and a few short chapters where you have disquisitions on rheumatic purpura, hæmophilia, Werlhoff's disease, etc. He takes the ground that all belong to the same class. To say the least, the transition from one of these cases to another is too slight to make a differential diagnosis. The fact that in New York City so many cases have been reported as purpura and so forth, etc., shows that probably many of these cases have not been properly diagnosed. Two cases I have seen this year—one was sent to me a few days before I sailed—it was a little baby with a few teeth, suffused gums and a few hæmorrhagic spots. The diagnosis of scurvy had been made. There were no hæmorrhages from the kidneys. There were spots all over the body. The child was treated by acids and improved rapidly. The other, a child of three years, was bleeding from the gums and from the intestines. I looked for the cause and found it. The child was very anæmic and diabetic, and when

the bleeding once stopped the child grew worse and died soon after. A number of cases are recorded, in which there was a tendency to have a large number of hæmorrhages from different organs and tissues. In most, there is a predilection to general hæmorrhage, as in typhoid fever, scarlet fever and rheumatismus nodosus. Now and then the kidneys, gums and other organs may bleed. In these, therefore, if we agree that we have no scurvy but only cases of hæmorrhagic diathesis in which the gums bleed, we know what we are talking about, but if not, then we are at sea. The cases described by Dr. Northrup here are similar. So far the microscopical investigations have been without a result. Large numbers of leucocytes are found in the blood-vessels, but to this time this condition has not been associated with any special bacillus. The doctor laid particular stress on the fact that this case occurred in a wealthy family. Children may be as much neglected and ignorantly fed in rich as in poor families. There is one peculiar fact in all cases, that as far as I know there were no hæmorrhages into the joints. The hæmorrhages sometimes extend over the epiphysis, but, as a rule, the joints are always intact. I would like the doctor to tell us whether he insists on calling scurvy only those cases in which the gums bleed or not, and if so, he must exclude the babies under six or seven months.

DR. NORTHRUP.—Dr. Jacobi is trying to lead me into deep water. I have carefully remained within the life line of facts, and have intentionally avoided discussion of the nature of the disease of which nothing is known. The cases here described correspond exactly with those described by Cheadle, Barlow and Eustace Smith.

As to the diagnosis, I should say the points that have thrust themselves before us most prominently in the recital of cases are the reliable ones, viz.: (1.) Pain on handling, located sooner or later in the thighs, also swelling, "rheumatism of the knees," as the mothers call it. (2.) Spongy gums. (3.) Rapid and marked improvement and recovery on administration of anti-scorbutics, oranges, etc.

DR. JACOBI.—I have no fault to find with the modesty of the author, but if no discussion was had, no benefit would accrue. Dr. Northrup says that he has many cases that agree perfectly with the articles in *Dr.*

Keating's Cyclopædia. We are not here for the pre-meditated purpose of agreeing; but to get along a little further in the line of research. I did not find Dr. Northrup in deep water before, but I do now. He claims the principal symptom of scorbutus is the subperiosteal hæmorrhage. This cannot be, for we find it is the first symptom in syphilis, often. Secondly, we find subperiosteal hæmorrhage in the new-born over the cranium. From what cause? From slight pressure. We find subperiosteal hæmorrhage even on the occipital bone where there is but very little pressure, because the blood-vessels are very thin in the new-born and are but insufficiently protected by their shallow grooves. It is also thus over the long bones, so the subperiosteal hæmorrhage cannot be considered a characteristic symptom of scurvy. I believe you must look for other causes, whether it is an invasion into the blood-vessels, whether it depends upon anatomical causes, or is a result of defective enervation, perhaps, always resulting from improper food. The blood in any condition will not extravasate unless the blood-vessels be changed, either by disease or congenitally. In the latter case, we may have a disproportion between the heart and the blood-vesels or unduly small arteries compared with the other blood-vessels. Thus, hæmorrhage may occur. So I do not think we are correct in diagnosing scurvy from that symptom alone. Dr. Northrup spoke of the femora. It is more the femur than the tibia that is affected. Is it not so?

DR. NORTHROP.—Yes.

DR. ROTCH.—Dr. Northrup does not mean hæmorrhage of the gums and thighs is enough, but these are two of the diagnostic symptoms of scurvy.

DR. JACOB.—Are we entitled to call all forms in which hæmorrhages show themselves, morbus maculosus, rheumatic purpura, etc., scurvy? May these be classed in the same category with scurvy?

DR. NORTHROP.—I have seen that article of Dr. Koch's, referred to. I stop where my facts stop. I want to say that hæmorrhages from the gums and subperiosteal hæmorrhages mean scurvy; I have collected twenty-five cases and reported them. In this case (Case I,) I felt in an instant that it was scurvy, and the condition of this child I call an indication to the general practitioner to be on the look out.

DR. JACOBI.—No one has collected so many cases as Dr. Northrup. While I do not feel like admitting that scurvy is different from the other forms I thought the proof might come out in this discussion, where there is plenty of material, and those who use the microscope might show what the Europeans have been unable to determine. And I hope that some of the members here present may be able to prepare a scheme for an exact diagnosis. I hope those gentlemen who are experts, informed and able, will study the conditions of the blood-vessels in these cases. Is there a foreign substance present in these cases? Is there a bacterium always present? Do the conditions exist in similar diseases?

DR. SMITH.—Having been connected for many years with asylums, I think this is not so rare a disease as supposed, but that we have been treating cases from time to time perhaps under a different name. We are now seeing cases of r  theln which we used to call epidemic roseola. I think it might be well to make investigations during the coming year, and discuss this disease at our next meeting.

A CASE OF CONGENITAL MALFORMATION OF THE HEART.—ATRESIA OF THE PULMONARY ARTERY WITH PERSISTENCE OF THE FOETAL CIRCULATION.*

BY WILLIAM TRAVIS HOWARD, JR., M.D.,

Baltimore.

† I am indebted to the courtesy and kindness of my friend Dr. L. Ernest Neale, in whose practice it occurred, for the autopsy and the history of the following case :

The father is a merchant; both parents are healthy. The mother is a multipara, and the delivery was normal. The patient was small and weak, weighing only five and three-quarters pounds at birth, and lived three months

* Read by invitation before the American Pediatric Society, Washington, D. C., Sept. 23, 1891.

† The histological portion of the work was done in the Pathological Laboratory of the Johns Hopkins University and Hospital.

and six days. It was quite cyanotic, and was a typical "blue baby."

On the second day, it was found that the rectum was imperfect. On the third day Dr. L. McLane Tiffany operated successfully for the relief of this, no anæsthetic being used. During the operation, the child was held by the heels, its lower extremities, buttocks and abdomen being nearly black, and its chest, head and upper extremities quite blue; its pulse and respirations very rapid.

The operation was followed by marked shock and collapse, with cyanosis, lasting two days. Under stimulation and careful nursing it improved and would be of quite a natural color for a day at a time. It, however, frequently had attacks of cyanosis with collapse. Its pulse was always rapid. Congenital heart disease was naturally suspected, but after careful and repeated examinations no murmur could be detected; an exact diagnosis as to its seat was not ventured upon. The heart-sounds were loud and clear.

The child gradually wasted and became weak, slight convulsions and cervical opisthotonos were observed. Towards the last, the hydrocephalic cry was heard. In spite of careful attention and nursing, the child gradually sank.

The following notes are taken from my autopsy records:

Autopsy.—Body wasted, small for age, 51 cm. long. There is no marked cyanosis. The cheeks are sunken, the fingers and toes somewhat clubbed. There is no dropsy. The anus is represented by a slit 5 cm. long. The head measures 54 cm. in circumference. On the removal of the skull-cap about 10 cc. of creamy pus escapes from the right side. There is basic and cortical meningitis, and encephalitis, with ependymitis, and distension of the ventricles with pus.

Heart.—The peri- and epi-cardia are pale, but otherwise normal; there is no effusion. The heart is asymmetrical in shape, the right ventricle being quite small and very strongly contracted.

The external appearance of the right ventricle is smooth, of an irregular shape, measuring from its junction with the right auricle to its apex 3 cm. and transversely at the base, 3.5 cm. Its wall is strongly contracted, but not hypertrophied, and measures in thickness near the valves 3 mm., and in the middle portion, where it is thickest, 11 mm. The musculature of the wall is of a light red color and of firm consistency. The inner surface of this ventricle measures from apex to base 12 mm. and its greatest transverse diameter is 17 mm. Its surface is smooth, and its cavity, which is rounder than normal, is nearly filled by an irregularly round fibrous mass, grayish-red in color, with white opaque edges, measuring in its greatest diameter, the transverse, 15 mm. It is nowhere adherent to the ventricular wall or to the valves, and is freely movable over the cordæ tendinæ, which runs through it.

The right auriculo-ventricular orifice is small, measuring only 13 mm. in circumference. It is closed by only two valves, which are somewhat thick, with their free borders elevated, but present no vegetations.

The inter-ventricular septum is perfect, but appears to run somewhat obliquely from left to right, making the right ventricle smaller than the left. The pars membranosa is perfect.

There is complete atresia of the orifice of the pulmonary artery at its origin from the right ventricle, the conus arteriosus being represented by a small depression of the size of a pin's head.

The point of atresia is situated at the position of the semi-lunar valves, the only traces of which are three small folds running several millimetres in the length of the artery. The atresia is complete, and the pulmonary artery above this point is narrowed and atrophied.

Its walls are smooth and it branches 15 mm. above the ventricle, and 2 mm. below the opening of the ductus arteriosus, which is 1.5 mm. in diameter.

The diameter of the pulmonary artery just above the point of atresia is 3 mm., and of the left pulmonary artery at the opening of the ductus arteriosus, 1 cm.

Right auricle is considerably dilated and hypertrophied. Its greatest diameter is the transverse, which measures 5. cm. Its walls average from 1 to 3 mm. in thickness, its inner surface is smooth, and the musculi pectinati are well developed. The orifices of both venæ cavæ are a little dilated, but are otherwise normal. The auricular appendage is large, measuring 3.5 cm. in length, the last 2.5 cm., being of fibrous tissue. The fossa ovalis is deep, and the foramen ovale is large, measuring 12 mm. in diameter. It is closed imperfectly by the Eustachian valve, which is represented by a thin membrane, and is complete, except at its inferior border, corresponding to the fossa ovalis, thus forming a more or less triangular opening between the two auricles.

This orifice when stretched forms a round opening 3 mm. in diameter.

Left ventricle is relatively large, globular in shape, its surface smooth, the musculature of its walls of a light red color and firm consistency. The length of the ventricle from the aortic ring to the apex is 2.5 cm., the thickness of its wall 9 mm.

The endocardium is smooth, and the musculi papillares well developed.

The segments of the mitral valve are normal and the circumference of the mitral orifice 4 cm. The middle leaflet of the aortic valve is thickened, and its free border retracted, the posterior leaflet less so. The circumference of the aortic orifice is 22 mm.

The left auricle is slightly dilated; its wall measures 1 mm. in thickness. The septum between it and the right auricle is imperfectly closed by a valve-like membrane, forming an opening which, when stretched, measures 3 mm. in diameter.

The auricular appendage is normal. The pulmonary veins enter by a double opening.

The Aorta.—The ascending arch of the aorta is larger than normal, measuring 2.5 cm. in circumference. It, with the innominate artery, appears dilated; both are free from patches.

The ductus arteriosus is given off 2 cm. above the aortic valves. Its margins are puckered, and its lower margin presents a triangular elevated ridge.

The orifice is more or less triangular in shape and measures 3 mm. in its greatest diameter.

The ductus is not funnel-shaped, though its aortic is larger than its pulmonary opening.

The weight of the heart is 31 grmms.

Lungs.—There is no effusion in the pleural cavities. The lungs are emphysematous, and their margins appear thickened. Muco-pus is squeezed from all the bronchi. There are small scattered areas of atelectasis.

The abdomen presents nothing abnormal.

The liver, spleen and kidneys show nothing of special interest.

The rectum opens into anus by a constriction 4 cm. and just below it 2.5 cm. There is absence of the coccyx; the sphincter is well preserved, and the operation wound entirely healed.

Microscopical examination of fresh frozen sections shows fatty degeneration of muscle fibres of the left ventricle, fatty infiltration of the liver cells, fatty degeneration of the epithelia of the kidneys, with thickening of the walls of the glomerular capillaries, and round and epithelial cell in the capsular spaces.

Hardened sections through the roots of the lungs show a slight dilatation of the bronchial arteries. The pulmonary arteries are of about normal size. There is a general bronchitis, and a slight diffuse interstitial pneumonia, best marked at the margins of the lungs. A few small areas of atelectasis are seen.

Anatomical diagnosis. Complete atresia of the pulmonary artery at its origin, strong contraction of the right ventricle, presence of but two segments at the right auriculo-ventricular orifice; patency of the foramen

ovale and the ductus arteriosus, thickening and retraction of the middle and posterior segments of the aortic valve, hypertrophy of the *right* auricle and the *left* ventricle. Bronchitis with interstitial pneumonia and emphysema of both lungs, and slight dilatation of the bronchial arteries. Fatty degeneration of the heart and kidneys, and fatty infiltration of the liver. Acute purulent ependymitis and encephalitis, with basic and cortical meningitis.

There are many interesting points in this case, but only those relating to the heart will be considered here.

The most striking features are the complete atresia of the pulmonary artery with patency, but not dilatation, of the ductus arteriosus, and patency of the foramen ovale, without imperfection of the ventricular septum.

Undoubtedly there was in this case persistence of the foetal circulation. Ordinarily one would find great dilatation of the ductus arteriosus and the bronchial arteries. But the child did not grow, and before death weighed a quarter of a pound less than at birth, hence, there was no need for the dilatation. The whole process is a congenital malformation, and as such is especially interesting in being associated with congenital imperforate rectum.

Had the atresia of the pulmonary artery been gradual, as from an inflammatory process, there must have necessarily been an hypertrophy of the *right* ventricle *pari passu* with the increasing obstruction to be overcome. Here the right ventricle is not hypertrophied, but is strongly contracted. So we would class this case with the great majority of such cases as due to a developmental error. In attempting to explain how these errors may occur, it is necessary to consider the development of the normal heart.

The systemic and pulmonary aortæ are formed by the junction of two longitudinal projections springing from the opposite flattened sides of truncus arteriosus.

These projections arise from slits in the lumen on each side of the truncus, grow and gradually coalesce, dividing

the truncus into two triangular portions. The separation is marked on the external surface of the truncus by two furrows, which are analogous to the two inter-ventricular sulci. The entire process in the truncus goes on entirely independently of the development of the inter-ventricular septum, but at the same time. Finally, the aortic septum, or septum of the truncus enters the ventricular cavity and uniting with the inter-ventricular septum furnishes the portion known as the pars membranacea, thus completing the separation of the heart cavities, the aorta belonging to the left and the pulmonary artery to the right ventricle. In the fully developed heart the pars membranacea represents the place where the closure took place last. In reptiles, this portion is not closed off, and an opening between the ventricles is left, the foramen Panizzae.

This fact is interesting as showing the ease with which in so many cases of congenital narrowing and atresia of the pulmonary artery, compensation is accomplished by the failure of closure of the foramen Panizzae by the septum of the truncus.

On the other hand, many cases in which both the atresia or narrowing, and the failure to close this foramen occur, may be explained by assuming that the same error in development caused both lesions.

The semi-lunar valves are first seen as four projecting masses of gelatinous substance covered with endothelial cells, one from each aspect of the narrowed portion of the truncus, at the fretum Halleri. When the division of the truncus into the aorta and the pulmonary artery takes place two of these projections are halved, so that each vessel receives a whole projection and two halves.

Normally, each whole projection develops into the middle segment or leaflet, and the two half projections become the anterior and posterior segments of each semi-lunar valve. This holds good for both the aorta and the pulmonary artery. So there are several possible modes for errors in development in this situation. (1) There may not be the proper number of projections

formed. (2) One or more of these projections may be imperfectly formed. (3) In consequence of either of these errors, there is not the normal amount of valve tissue left on one or both sides, after the division of the truncus to form the normal valve segments. (4) Perfectly formed and divided projections might unite and grow together, and, steadily contracting, cause narrowing or atresia of either or both orifices, with or without imperfect ventricular septum accordingly as the septum of the truncus arteriosus does or does not form the pars membranacea.

In my case the middle or undivided segment of the aortic valve was thickened and retracted, and the posterior segment somewhat less so. This with the complete atresia of the pulmonary orifice would suggest an imperfect development of the primitive valvular projections as well as faulty division. Another element that may come in here is the chance of an oblique division of the truncus arteriosus at the expense of the right side.

This error would make the pulmonary artery at its origin small, and would cause faulty division of the valvular projections and consequent atresia of the pulmonary artery and widening of the aorta in its arch. This would explain the present case. In cases of narrowing and of atresia of the pulmonary artery with the left ventricle much larger than the right ventricle, there is probably an oblique division of the primitive ventricle by the inter-ventricular septum, in addition to the above-mentioned errors.

In most cases of pulmonary artery atresia the ductus arteriosus is very much dilated and often funnel-shaped.

Here it is not larger than normal, but still patent, though it should normally close by the fourteenth day. As the foramen ovale is also patent, the foetal circulation has persisted. In this connection it is interesting to call attention to the point that the right ventricle was strongly contracted, but not hypertrophied, while the left ventricle was hypertrophied and somewhat dilated.

The absence of a cardiac murmur during life is explained by the facts that the foetal circulation persisted and that there is no murmur produced by the heart of a normal foetus.

In the light of these observations, when symptoms of cardiac disease and obstruction to the circulation are met with in the newly born without a cardiac murmur, one must strongly suspect the existence of the cardiac conditions described in this case.

DISCUSSION.

DR. HOLT.—This case seems to me an unusual one in that there was no inter-ventricular opening, not even a patent foramen ovale.

DR. SMITH.—Several years ago, I collected all the cases of cyanosis which I could find, the number amounting to 162. I found in an analysis of these cases the most common lesion was an absent rudimentary, impervious, or partially obstructed pulmonary artery (97 cases), so that the only way in which the blood could reach the lungs was by a circuitous route from one side of the heart to the other by the foramen ovale or through the inter-ventricular opening. Had this child lived, it would have been cyanotic, especially in times of excitement. Sometimes cyanosis does not appear for a month or more till some excitement occurs and then it is continuous.

AN IMPROVED METHOD OF PERFORMING ARTIFICIAL FORCIBLE RESPIRATION.*

(With Exhibition of Instruments.)

BY J. O'DWYER, M. D.,

New York.

The subject to which I will briefly call your attention is a modification of the method of producing artificial respiration as devised by Dr. Geo. E. Fell, of Buffalo.

*Read before the American Pediatric Society, Washington, D. C., Sept. 23, 1891.

In the performance of artificial respiration by any means, it is important to remember that all we have to do is to get air into the lungs and to give it sufficient time and room to escape, the power generated and stored up in overcoming the resistance to inspiration being amply sufficient to carry on expiration.

The Sylvester and similar methods which aim to imitate natural inspiration by expanding the chest are extremely inefficient, simply because the chest cannot be expanded to any considerable degree, without contraction of the inspiratory muscles and especially of the diaphragm. Dr. Fell's method, which is identical with that practised in the laboratories on lower animals, consists in forcing air into the lungs by means of a foot bellows—the connection between the bellows and the lungs being effected by means of rubber-tubing attached to a canula in the trachea or to a mask applied over the mouth and nose. To both of these means of making the connection, there are serious objections.

In one, not only has tracheotomy to be performed but the wound around the canula must be made air tight, and the trachea either tied or tamponed above the incision, to prevent the air from escaping upward, through the larynx.

In forcing air through the mouth or nose, of an insensible patient, the tongue, unless secured, is almost certain to cause obstruction, or the vocal cords may be forced together by the in-rushing air, and act as a valve as in paralysis of the abductor muscles because there is no expansion of the glottis as in normal inspiration. Should the larynx become obstructed from any cause, the stomach will be inflated instead of the lungs.

I have devised a set of tubes, which I think will overcome these difficulties by establishing direct communication between the bellows and the lungs through the natural passages.

The laryngeal portion of the tube, as you will see, is conical in shape and is intended to tampon the larynx below the vocal cords, so that no air can return beside it.

This portion of the larynx is almost cylindrical in shape, considerably smaller than the trachea and therefore more easily plugged than either the triangular shaped rima or the much larger cavity above.

The set consists of two long tubes, one for children the other for adults, and five laryngeal tips, the lower portion of the latter being surrounded by grooves to allow the vocal cords to aid in holding them down.

The proximal portion of the long tube has two openings—one for inspiration to which the rubber-tubing connecting with the bellows is attached, the other to be controlled by the thumb of the right hand.

Those familiar with intubation in croup will find no difficulty in the introduction of these tubes in children; but in adults it is not so easy to use the finger as a guide, owing to the greater distance of the larynx from the mouth. On the cadaver, I have found it much easier to properly place the tube without any guide, by carrying it well down towards the œsophagus, and then coming forward in the middle line with downward pressure.

The principal danger attending this operation is injury to the lungs from forcing air in and not allowing sufficient time for it to escape, resulting in over-distension and rupture of the pulmonary vesicles.

The best safeguard against this accident is making the respirations slowly—ten or twelve to the minute—and watching the movements of the patient's chest, which should be uncovered, with the exception of the closely fitting under-garment.

The value of this method of performing artificial respiration in man has been amply demonstrated by Dr. Fell in a number of cases of opium poisoning successfully treated.

Dr. Horatio C. Wood, in his paper on Anæsthesia, read before the International Medical Congress, speaks as follows of its value in resuscitating animals apparently dead from ether and chloroform.*

*1st vol. of the transactions.

“ The most remarkable results which I have reached in bringing about recovery of animals to all ordinary intents and purposes dead, were obtained through the use of artificial respiration. Thus, I have seen an animal in which no respiratory movements, whatever, had taken place for two minutes, and in which no movements of blood had occurred in the carotid, and in which the heart had therefore ceased to beat rapidly and permanently restored by artificial respiration. At one time in these researches, it appeared as though after any dose of chloroform by inhalation, the animal could be resuscitated by artificial respiration, even though heart and lungs were completely paralyzed by the drug ; but finally, I did find a case in which, after the animal had repeatedly been apparently killed and resuscitated, artificial respiration failed.”

After discussing the value of drugs in poisoning by ether and chloroform, Dr. Wood continues as follows :

“ The one measure which in practical value far surpassed all others for the restoration of the dying animal was artificial respiration, and I have no doubt that a great majority of the deaths which have occurred in man from anæsthesia, might have been avoided by the use of an active artificial respiration. The difficulty with artificial respiration, as it has been hitherto practised on man after the Sylvester or other method, is its inefficiency, whereas, the artificial respiration which I used was very active indeed ; much more efficient than natural breathing in causing circulation of air in the lungs, and, therefore, in removing excess of the poison from the residual air in the lungs and from the blood.”

Artificial respiration is called for, not only in all forms of narcotic poisoning, but may also prove useful in those cases in which the inspiratory muscles are rendered temporarily as useless, as if paralyzed by spasmodic contraction, such as strychnine poisoning, puerperal and other forms eclampsia, and also in acute pulmonary obstruction from various causes.

In the latter class of cases, I made some experiments six or seven years ago at the New York Foundling Asylum,

using the laryngeal tube I here show you, through which air was forced into the lungs by means of a rubber bag.

During the past winter, I tried the same instrument in one case with the bellows attached, and demonstrated one thing at least, viz: that we can breathe for a patient, while still perfectly conscious, and keep it up for several hours after he has lost the power to breathe for himself.

Another use to which these tubes may be applied is to prevent blood from entering the lower air-passages during operations in or about the mouth, while, at the same time, affording a free passage for the air to and from the lungs.

For this purpose, a lateral curve of the proximal portion would be necessary to prevent interference with the operation.

DISCUSSION.

DR. NORTHRUP :—We must look out for Dr. O'Dwyer ; he is always giving us something better than he promises. One Doctor can easily work this apparatus on a child for six or seven hours. I can verify the statement that "A single forced inflation cannot break the lungs, no matter how violent it may be."

DR. BOOKER :—Would this apparatus be of any use in absence of respiration in the new born ?

DR. O'DWYER :—It might be in case it was considered desirable to keep up artificial respiration for a considerable length of time but I have found the mouth to mouth method of inflation amply sufficient in the asphyxia of the new-born.

CLINICAL LECTURE.*

BY A. JACOBI, M.D.,

Clinical Professor of the Diseases of Children, College of Physicians and Surgeons,
New York.

- I. STRYCHNIA IN SPINAL PARALYSIS—2. DIPHTHERITIC
CASTS OF THE LARYNX, TRACHEA AND BRONCHI—
3. NÆVI—4. HEART MURMUR—5. EPILEPSY.

1. *Strychnia in Spinal Paralysis.*—Some time ago when speaking to you of the treatment of diseases of the spinal cord, of paralysis particularly, I requested you not to forget that recent cases of paralysis of inflammatory origin must never be treated with strychnia. I will now say a word regarding indications for strychnia in old cases, in which the original hyperæmia and congestion have made way for anæmia and atrophy of the cord. In such cases strychnia is indicated. It is certainly not a panacea, for substantial tissue changes are often not amenable to treatment. But negative results are frequently due not so much to the strychnia as to the mode of its administration. In a large number of cases where the drug is administered internally, you will have to wait some time for effects, and in many, when so administered, it will produce no effect whatever, therefore I advise you to use it subcutaneously. I could mention a number of cases where it has been administered for months or longer without apparent effect, yet when given subcutaneously in very moderate doses, two or three times a week, or daily, the effect was marked.

You should remember that two men may claim to do the same thing, and yet do not do the same thing at all. You will often be told by persons that they have done the same thing which you may be advising, yet on inquiry, you will find that a very different thing has been done. You will be told by these persons that they have given

* Stenographic Report.

strychnia unsuccessfully. On inquiry you will find either the dose insufficient, or given improperly.

We have here the case of a child with a transverse myelitis which had been treated outside a number of months, without apparent benefit. We gave it three injections a week of one-sixtieth of a grain of strychnine. The result has been very favorable within a week or two. Before, there was no motion whatever in the legs. Now, the child is able to swing them, which is an indication of marked improvement. Certainly such a result would not have been expected from internal administration of the drug.

2. *Diphtheritic Casts of the Larynx, Trachea and Bronchi.*—The two specimens here presented were taken by Dr. Huber, from a child eight years old, which died with diphtheritic croup. I had the opportunity to see the patient with him when there was a great deal of dyspnœa and the characteristic symptom of laryngeal stenosis was present. This one characteristic sign of laryngeal stenosis, for which you must watch in your future practice, is retraction with every inspiration of the supra-clavicular and sub-clavicular and the diaphragmatic regions, the effect of the rarefaction of air in the lungs and the atmospheric pressure outside.

Unless you have that retraction, the diagnosis of *uncomplicated* laryngeal stenosis should never be made. You have not to deal with uncomplicated membranous croup, consequently intubation or tracheotomy will not be required to relieve strangulation. There may be a thin membrane in the larynx, but as long as it allows a good deal of air to enter, although there may be some hoarseness and a little dyspnœa, there will not be that amount of retraction in the supra—and sub-clavicular spaces which calls for surgical interference. Again, there will be no call for surgical interference as long as you can distinguish pulmonary respiration. When you have a laryngeal obstruction sufficient to require surgical interference, the laryngeal noise during respiration will be so loud as to overshadow pulmonary respiratory murmurs alto-

gether. Those two symptoms I hope you will never forget.

In this case there was no audible pulmonary respiration. There was a great deal of retraction, and there was diphtheritic croup. The doctor intubated a few hours after I saw the baby. He was compelled, he says, to remove the tube, and when he did so, this mass came away. It was expelled through the larynx. You will see it was composed of a fibrinous cylinder, long enough to cover the entire inside of the trachea. Here you will see a continuation of it in the form of a branch tube, which is a cast of a bronchus ; and here, there are other bronchial continuations. The doctor was compelled sixteen hours afterwards to perform tracheotomy, intubation not being sufficient, and through the tracheotomy canula, this other mass was expelled. Here again, you see a cast of the trachea, and with it dozens of ramifications which had extended down the bronchi. Thus you have here proof of diphtheria of the larynx and trachea, so-called pseudo-membranous croup. Finally the child succumbed.

These are very interesting specimens. You see them now and then depicted in the books. In a case of mine a large cast was expelled only seven hours before death, yet at the autopsy I found a similar membrane covering the bronchial tubes. Thus even in the dying child a membrane was formed within probably less than seven hours. That point is very important, so far as prognosis is concerned. It shows that the patient is never in safety until the whole process has found a favorable termination. Never be tempted into making a good prognosis in such cases until the child is entirely well. There would have been here on the part of an inexperienced man a great temptation after the trachea and bronchi had been cleared of that cast, to predict a favorable result, but within twenty-one hours another was formed. Do not forget, therefore, that such membranes can form in a very short time. The diphtheritic process is in most cases very acute, no matter where you see it. You can prove that in another way. If, for instance, in a diphtheritic person

you should be tempted to apply leeches, which I hope you will never do, you will find sometimes that within a very few hours after the application diphtheritic membrane will cover the place of the bite entirely, which shows that the diphtheritic process will take hold on any sore surface, no matter whether it is mucous membrane or the skin deprived of its epidermis, as for instance by a vesicatory.

3. *Nævi*.—Before proceeding to operate on this case, I wish to add a word to the mother's statement that the baby has eaten nothing since breakfast. The following incident is only one of many: I once had to operate for stone on a little boy. The parents were directed not to give the child anything but milk and bread in the morning. Nothing in the afternoon. They reported before the operation that instructions in this regard had been followed, but when the baby was etherized it vomited peas, potatoes, meat, etc., etc. One piece of that meat never got out of the baby's throat. It entered the larynx and before it could be extracted or tracheotomy performed, the child died of suffocation. Therefore, do not be too confident when you are told that the child had received no food since breakfast, but carefully watch the effect of the chloroform or ether.

We were told that this immense angioma was a very small affair, a mere superficial discoloration when the baby was born, but nothing was done for it for a number of months. It then began to grow very rapidly, and some physicians performed seventeen operations, but of what description we cannot tell. We now see a large number of scars, which evidently had been made by these operations. They would seem to have been very superficial, not in the manner in which we are in the habit of operating here. We always use the actual cautery. The galvano-cautery might be employed. To-day we will use Paquelin's thermocauter. It should be introduced at one spot only, making but one opening, destroying as much as you can subcutaneously from that starting point. Be sure to keep away from the skin, and be sure also to keep

a distance from the most remote part of the tumor, else you may destroy more than you had intended to do, with your cautery. You may be able to cause the disappearance of the whole mass by destroying, perhaps, one third or one half. Be sure never to destroy, never to encroach upon, healthy tissue. It is better to do too little than too much at any one sitting. Better operate three or four times than run the risk of doing more than you should in attempting to complete the operation at one sitting. Never use white heat. If you do you may burn the blood vessels so quickly as to cause considerable hæmorrhage.

I have now destroyed a part of the tumor. In the immediate neighborhood of the parts actually destroyed the blood will coagulate in the vessels, and red surfaces some distance around the tissue actually destroyed, will be seen to disappear gradually, for the vessels will contract, and the surface will there probably become pale. A number of cases have come here where the angioma extended over the lips, forming tumors, which hung down from the mouth, yet by the careful use of the cautery the blood became coagulated in the vessels, tumors disappeared, the lips were restored with very little deformity. It is characteristic of the actual cautery that the scars which it leaves are very superficial and show less from year to year.

If after returning home this sore should bleed, all the mother need do is to make pressure with the fingers. It is not likely that any hæmorrhage will take place at all. We will give her a prescription for some iodoform and vaseline, or bismuth and vaseline, to cover the surface with.

Our second patient is a child which has a swelling outward from the mouth, nearly in the same situation as in the first case, and resembling not a little, the enlargement in that case. It is of interest chiefly from the fact that the two cases have presented themselves at the same time, whereas the diagnosis is far from being the same. The swelling in this child came on only last night, it is situated over the submaxillary gland, the skin is somewhat reddened, there is a feeling of hardness on deep

palpation, there is a carious tooth, near which a little pus escaped on pressure. The dentist should see the child and remove the tooth.

4. *Heart Murmur.*—Our next patient is a child aged two years and six months. The mother has had two other children. The pulse in this case is 100. It is not regular in consequence of the digitalis she has been taking during the week. My assistant says the pulse was regular last week, but he does not remember its frequency. It was only last week the child was sent here, having a heart murmur, and the question arose whether the murmur was acquired or congenital. There was absence of cyanosis, and we know that there are very few cases of congenital heart disease without cyanosis. There may be none while the baby lies quiet, but as soon as it cries the mucous membrane of the lips, etc., assume a bluish hue. We found there was no hypertrophy, no cyanosis, and also that the murmur was mitral, apparently only transmitted to the aortic region. Mitral murmurs occur very seldom in connection with congenital heart disease. In the foetus the right heart does the principal work, and is more likely to be taken with disease, the physiological function becoming a pathological one. It is true that here there was no hypertrophy, although we expect after a time in mitral incompetency to find enlargement or hypertrophy, or both. So long as you do not find hypertrophy together with a mitral murmur, it is safer to make a diagnosis of a functional than of an organic murmur. In this case, however, we felt inclined to make a diagnosis of an organic murmur, because it seemed to be limited pretty closely to the mitral and to be only transmitted to the aortic region. True, there was no hypertrophy, but then the baby was small, the disease which had given rise to the incompetency may not have occurred a long time before, and hypertrophy may not have had time to become established. Finally, we remember how frequently rheumatism occurs in infants and children. We spoke a week or two ago of this fact, and stated that articular symptoms need not be very well

expressed and still endocarditis result. I spoke of cases in which the endocarditis would even be the first to show itself, and mild articular symptoms manifest themselves only later. There is much irregularity in the occurrence of rheumatic symptoms in children. In many cases you will find chorea manifest itself as the first symptom. Thus, last week, we thought we had to do not with a congenital lesion, but with acquired mitral incompetency of organic origin which had not yet had time to cause hypertrophy. The child was ordered a little digitalis which it has been taking, and now the frequency of the heart-beat is much less, although the rhythm shows irregularity. When the heart is beating 150 or 140, or even 120 per minute, you may not be able to discover any irregularity, nor a murmur, but as soon as the frequency of the beat is reduced either artificially or spontaneously, irregularity of rhythm and a murmur may become manifest. Indeed, to discover a murmur, it is often necessary to reduce the number of heart-beats.

The child has been taking a grain and a quarter of the fluid extract of digitalis in the twenty-four hours, which is a small dose. Babies, as a rule, require and tolerate larger doses of cardiac stimulants than adults. Yet, evidently this has been a sufficient amount for this baby, and it should be stopped a day or two and commenced again.

The pulse having come down, I had expected to find the murmur more pronounced than it was last week, but it is less pronounced, and I am beginning to doubt our first diagnosis. I am now disposed to think that we have to do only with a functional murmur, and not with organic heart disease at all. The baby looks very anæmic, which would point in the direction of the murmur being functional. Yet you should remember that functional murmurs are much less frequent in babies than in adults. In adults, especially in chlorotic girls, they are very common. In infants the degree of anæmia has to be very pronounced in order to produce a functional murmur. But this baby is very anæmic and puny for her age. The skin is pale, so are the lips and mucous membranes, and the

degree of anæmia is such that she might very well develop a functional murmur. Yet she is certainly in better condition than she was last week. How is that to be accounted for? The murmur depends not on the condition of the blood, but on the condition of the heart. The organic murmur is the result of an organic change and of the deposit which may take place on the valve, etc. The functional murmur is the result in nearly every case of an irregular, insufficient contraction of the heart muscle. The heart may not contract normally; it may contract in installments, as it were. In old, atheromatous people especially, you may find, instead of one contraction, two semi-contractions, or a number of sounds, instead of one sound caused by a single contraction. The same thing is sometimes observed where the heart is very weak. Imagine that there is anæmia of all the tissues. With it there is an insufficient amount of nutrition. That means insufficient vigor of contraction on the part of the heart, and, as I have just explained, a murmur is heard. If during the week the vigor of the heart in this case had increased spontaneously from increased nutrition, the murmur might not only have improved but might have entirely disappeared. We did the best thing we thought we knew; we gave digitalis, and this resulted in better innervation and better contraction of the heart. The influence of the cardiac tonic during the week has led us to change our diagnosis from that of an acquired organic murmur made when we first saw the baby to that of a functional murmur. However, we will examine further into the case before reaching a positive conclusion. I will have the baby brought to my office to-morrow morning and examine the blood. In one cubic centimetre of blood there are between five and a half and six millions of red blood cells to twenty thousand leucocytes, or one leucocyte in normal blood to about three hundred red blood cells. It is not necessary that there should be any increase in the leucocytes here; what we shall probably find is a vast diminution in the number of the red blood cells. A very considerable amount of anæmia would, for instance, show

four millions instead of six millions, or even less. It appears to me that this baby has not more than three and a half or three millions of red blood cells to the cubic centimetre.*

As to the treatment, we shall inquire into the feeding of the baby. If the baby receive a great deal of farinaceous food, we shall substitute some animal food, as beef and mutton, and egg. We will give it one of the more digestible forms of iron. The syrup of the hypophosphite with iron of the U. S. Pharmacopœia is a very good preparation. The baby might begin with twelve to fifteen minims of it three times a day, but since it is said already to be taking twenty minims, this amount might be continued or increased. In a number of instances the syrup of the iodide of iron will do good service, even where you do not wish the effect of the iodine as an absorbent. It acts as an absorbent, it is true, but the iodide in the iron acts very much more as an anti-fermentative in the stomach and intestine than it does as an absorbent, and in a case of this character, where we want a good deal of food taken and where fermentation may easily set in, I think the iodide would be a good preparation. At the same time we shall have to stimulate the stomach a little. Imagine what we have to deal with: A baby which is very anæmic, with few blood cells, very little tissue building, the heart so poorly nourished that a murmur is the result of it, what is the condition of the stomach in such a case? It is pale, the muscle is as little developed as that of the heart; there is very little secretion of gastric juice, because there is very little blood, and thus it is necessary to stimulate the stomach's action for a certain time in order to cause a little more appetite and a little better digestion of food. The addition, then, to the preparation of iron of some pepsin and muriatic acid, and some strychnine would be a good move. A baby of that kind could easily take internally, for the purpose of innervation of the stomach, etc., $\frac{1}{150}$ gr. of strychnine three times a

* There were in the neighborhood of four millions.

day. The child might take of the wine of pepsin of the National Pharmacopœia a teaspoonful. I will say that the preparations contained in the National Formulary, or the U. S. Pharmacopœia are sufficient for me. The catalogues of the wholesale or retail druggists have no temptation for me. I do not prescribe their compounds. I never see one of their agents in my office, or if I do it is only for a very short moment. Even if a half or a quarter of the Pharmacopœia were stricken out, I could get along quite well yet, and I cannot say that I appreciate the benevolence of the agent or the manufacturer of proprietary medicines at all. Whatever medicines you hear about from me are officinal. In the National Formulary there is a preparation which contains strychnia, bismuth and pepsin. In each teaspoonful there is a hundredth of a grain of strychnia, and this baby might safely take two teaspoonfuls a day, or half a teaspoonful after each meal. I think that would aid digestion by sharpening the appetite and stimulating the muscular layers of the stomach.

5. *Epilepsy*.—Lizzie Miller, eleven years old, youngest of three children, at the age of six months had an attack of scarlet fever, and an attack of measles at the third year. The next three years she remained well. At the age of six years she began to have attacks of night terrors; would start up suddenly in bed, cry out, run to the mother for protection. These attacks continued some time; they were not treated. Three years ago, while eating her supper, the patient suddenly became perfectly rigid, eyes rolling rapidly from side to side. She was placed in bed. Soon afterwards vomited, and had passage, then had general convulsions which required four people to hold her, and lasted one hour. Two months after this she had two more attacks, not so severe as the first, lasting only a few moments. Since then, they have come on more frequently, and are always preceded by headache. During the attack she cries out, "Oh, mamma," then falls down unconscious. The unconsciousness continues from five to twenty minutes. She grinds her teeth, but never bites her tongue; becomes rigid, has a convulsion, wakes

up with headache. Six months ago she fell in the street, striking on the left side of the head. Vision then became impaired. After each attack it became worse. Examination of the urine negative.

The ophthalmic examination reveals general atrophy of both optic nerves. She is unable to distinguish the hand placed immediately before her eyes; recognizes light. The motor oculi and abducens are normal. It would appear, therefore, that her disturbance of vision is central.

There is a long history of suffering in this case extending over three years, during which time the patient has had very severe attacks of what appear to be epileptic convulsions, occurring infrequently at first, more frequently of late and especially since she fell in the street. To the fall on the head it would appear at least, that inability to see is due.

We have heard something in the history of headache. When she awakes from these attacks, this symptom makes its appearance. Epileptics are very apt to wake up with headache and a sense of stupor.

Epilepsy means a functional disorder of the brain which has, as its foremost symptom, temporary paleness and temporary loss of consciousness with or without motor disturbance. Convulsions do not belong to the definition of epilepsy at all. There are mild and severe cases of epilepsy. The severe ones always have loss of consciousness only. This may last minutes; it may last seconds; it may only last a moment.

In infancy, epilepsy is apt to be of a form called *petit mal*, meaning small evil. It may consist in nothing but momentary unconsciousness with pallor, both giving way to immediate well-being, but the symptoms of epilepsy in a little child may be so manifold that it is impossible to mention all of them in a few remarks. There is one symptom that you must always expect, that is, paleness in the beginning. The severe cases which terminate in a purple face and intense congestion, begin with pallor. This is in accord with the fact that the cause in the beginning

is to be sought for, so far as the brain is concerned, in local anæmia.

You will remember that but recently we saw the case of a girl of eight or nine years who would suddenly lose consciousness and run in a certain direction, until she would stop herself or be stopped. In some cases, the attack begins and ends with simply a præcordial pain, a shriek, a loss of consciousness, a spell of dizziness all of which pass over so quickly that the patients may not fall to the ground. They will have an attack between one step and another. Other patients, however, have very severe attacks even from the beginning. Most cases of epilepsy in the adult are either congenital or acquired in early infancy.

Epilepsy is a complex of symptoms, and of symptoms only. It is no more a disease than is dropsy, asthma, or any other severe symptom. It is the result of one or more of a large number of conditions. One of the principal causes is an injury or abnormal state brought on during birth. I have before referred to the fact that hæmorrhages in the newly born are very frequent. They may take place in the meninges of the spinal cord, but particularly in the meninges of the brain. How frequent they are under the periosteum of the cranium, as so-called "cephalhaematoma," during, or immediately after birth, you are aware of.

Apoplexies or hæmorrhages into the brain are not infrequent in the newly born. Forceps is by no means always an inoffensive instrument. True, it will compress the cranium sometimes to such an extent that its traces are visible for days, and its results sometimes for years. The blood vessels being thin, hæmorrhage is easily caused by instrumental pressure.

Again it is very common to see epilepsy after asphyxia of the newly born. The interruption of the foetal, and retardation of post-natal circulation, leads to very serious results by causing a hæmatoma. It may produce encephalitis or encephalo-meningitis and paralysis for life, or idiocy or epilepsy. There are a number of cases of epilepsy

dating from infancy, in which the fœtus before birth was in apparent perfect health. Thus the newly born will be seen to be in danger by the process of parturition itself.

There are other cases of epilepsy which date from somewhat more advanced childhood. It may occur in patients showing paralysis or idiocy. Often in these cases the cranium will be found a symmetrical to a high degree. One side may prematurely ossify, while the other permits of the normally rapid growth of the brain which takes place at this period. This premature ossification may take place somewhat earlier, somewhat later, but always when it is bilateral with the result of more or less well-marked idiocy and tendency to convulsions. I have always taught that until lately all of these cases were lost or incurable. Recently Lannelongue, of Paris, has opened the skull in order to give the brain a chance to develop, but he has done this not only where there was premature ossification, but also in cases of microcephalus not due to this cause. But where there is no premature ossification this treatment cannot be applicable. If there be premature ossification, grooving may do good, and it appears to have done some good in a few cases, but do not forget that the operation is only about a year old, and the results certainly cannot be so extravagantly favorable as they have been described. While a number of cases have been published in the journals in which the success seems to have been very marked, I would have you remember that not all is gold that glitters. Time may tell a different story for many of these cases. I know from personal observation that some cases which have terminated on the operating table have not been in a hurry to get into the journals. My own case died three days after the operation.

There are a number of other cases of congenital epilepsy due to absence apparently of some part of the brain, mainly the basal ganglia, which, of course, cannot be remedied, and must last for life. Again, meningitis may set in at any time, and there may be various other causes which we have hardly time to mention to-day. To some extent, either organically or functionally, the cortex is

affected as is best shown by the interference with its functions. There are many cases of epilepsy which are not brought to the physician's attention at all. The condition causing *petit mal* may make the child morose, peevish, the real nature of the case being overlooked by the parents, and the child being punished. The fainting spells, or loss of consciousness, may not be observed. It may shriek suddenly from præcordial pain, but it being so temporary, attention is not paid to it. Later, a severe attack may manifest itself, and only from that will the parents date the beginning of the epilepsy.

In a number of cases, epilepsy is the result of reflexes. We will not go into the question of to what extent the presence of worms in the intestines, particularly of teniæ, to what extent the presence of a scar or a tumor on the spinal cord, etc., may bring on disordered brain function and produce epilepsy. In cases of tumor of the brain the tumor itself has often its own symptoms, which may aid in the diagnosis. Among the most easily ascertained symptoms are paralysis, severe pain, vomiting, convulsions, blindness, etc., according to the position of the tumor. But all these symptoms may be absent. You will now and then see an epileptic in whom there are no apparent symptoms of disease in the brain, yet a tumor or a large diseased area be found at autopsy. I have known such cases where the person may have died suddenly, no tumor or abscess having been suspected during life, but found on the post mortem table.

This child had a fall, that fall may have caused the meningitis, it may have caused a hæmorrhage, and meningitis afterward, or there may have been a tumor before. As a rule, hæmorrhage and meningitis will not result in atrophy of the optic nerve, particularly not bilaterally. The probability is that there is compression in the course of the nerve by a tumor. If that be so, the question arises how old is the tumor? Tumors in the brain may be many years old before they are detected. They are of different kinds; they may be gliomata, hard, composed mostly of connective tissue, or they may be tuberculous. Some-

times but a single tubercle is found in the brain ; sometimes several. There may be sarcomata, or carcinomata, but the latter very rarely. The large majority of cases of tumor of the brain are gliomata or tubercle. Cysts of the dura mater result sometimes from the presence of a hæmatoma.

There is no family history of tubercle in this case. It is difficult to make a positive diagnosis. The blindness resulting from atrophy of the optic nerve would suggest the presence of a tumor. The very severe headache which the child has had, especially the last six or eight months, would suggest the same thing, although it might, too, be caused by a meningitis. The child has had fully developed epileptic attacks these last three years. They are increasing rapidly, as are the optic symptoms. The prognosis, therefore, is probably a very bad one.

In cases in which the epilepsy is the result of something which has no increasing development of its own, as an inflammation or a tumor might do, our symptomatic treatment might do a great deal. But where we have to deal with a progressive lesion of the brain, I think our symptomatic treatment can do very little, unless you have, perhaps, to deal with a syphilitic gumma. If it were possible to make out a tumor in this case, and locate it at an accessible point, we might cut down upon it and remove it, and hope, perhaps, against hope to give relief. But the tumor in this case is certainly low down. It reaches the chiasm necessarily, because the blindness and atrophy of the optic nerve is bi-lateral, and thus we cannot hope to remove it. Altogether, an operation for the cure of epilepsy, even when the diagnosis of tumor has been made, has not found a very substantial basis. The results thus far obtained, leave a good deal to be desired. Very few operations for epilepsy have proven successful.

It is only by having access to hospital records and conversing with surgical friends that you will learn how many patients have remained on the table and how many have not been improved. But when there is a successful case it appears to be human and surgical to crow over the

result. Even hens are accustomed to criticize both loud and favorably the newly laid egg. Still, there are many published reports now which candidly deplore the lack of successes; at all events, a case of epilepsy must not be considered cured unless a number of years have passed without a return after discontinuing the treatment which appeared "successful."

There are other surgical processes besides those practiced upon the cranium and brain. The removal of irritating cicatrices is one; also surgical treatment of the nose where chronic nasal catarrh was supposed to be a cause, and so on. I think it was nine years ago that Hack published his observations upon nasal irritation as a cause of epilepsy, asthma, etc. He discovered that a number of cases of neuralgia, etc., got well after treatment of the nose, and he became very enthusiastic about it. He was fortunate enough to see the partial error of his way before he died. He also published a few cases of epilepsy which he regarded as cured by the same treatment (that is, burning of the "erectile tissue" of nose), and thus proving to his own satisfaction and that of others, that in those cases epilepsy was a reflex symptom depending on nasal irritation. But undoubtedly, as a rule, except in a very few cases, that treatment will fail. Another surgical interference was directed to the muscles of the eyes, to relieve eye strain. There is a gentleman in this city who has proclaimed that most, or perhaps all cases of chorea and epilepsy and other nervous troubles, are the result of what he has called eye-strain, an incompetency of the muscles of accommodation. He claims that by operating to relieve that error of accommodation, he can cure every case of chorea, etc. It is wonderful how much enthusiasm can be created by fads. The same men who have those fads and are within the pale of the profession would smile and do smile, when they hear of a quack treating all diseases by, for instance, feeding the patient on beef and water, yet I cannot see that that is much worse than to cure every single case of epilepsy, chorea, or nervous disorder by operating for eye-strain or operating on the nose.

We have to be very careful not to deceive ourselves or be deceived. Every year or two such fads come up in the profession, and they spread like wildfire. We know what ravages with our logic the enthusiasm over tuberculin worked only a year ago. Be very careful, then, and very cool, and when you hear of a panacea in the future remember that neither nasal burning, nor operations for eye-strain, nor tuberculin, nor anything else, not even beef and hot water, can cure every disease, including epilepsy.

Now and then epilepsy is the result of some other reflex. For instance, you will meet with cases dependent upon intestinal worms. Such cases may be cured simply by expelling the worm or worms. But we must not forget, too, that now and then, when the cause has been removed, a permanent cure need not take place. The changes in the nerves or brain may remain after their original cause has been removed. This experience teaches us that when we see a case of epilepsy, the cause should be found, if possible, at once and removed, so as to prevent a permanent epileptic impression upon the nervous system.

Now we come to the question, what to do symptomatically. I need not tell you that the principal symptomatic treatment is with bromide of potassium. Bromide of potassium will do, I believe, at least as well as the mixture of two or three bromides proclaimed sometimes to be much preferable. The supposition that the potassium will weaken the heart more than the sodium is perhaps theoretically correct, but practically I cannot say that it is. I have not seen hearts weakened in this disease by bromide of potassium any more than by any other preparation, and I must say that the bromide of potassium has done as much good as the bromide of sodium or other agents in the treatment. What is the dose? The dose for a baby is much larger, comparatively, than for an adult. An adult will not take, for a long time at least, more than about four scruples or two drachms without showing some bromism. Children bear a great deal more in comparison. A child of two

years with epilepsy, may safely take twenty, thirty, or forty grains a day. Once I was called to a case of supposed poisoning from bromide of potassium. A baby, I think, of seven or eight months, was given, by mistake of the apothecary, twenty grains of bromide of potassium. Pale and exhausted, the apothecary came to the patient's house to say that he had made a mistake. The baby had swallowed the whole dose, and a doctor was called in a hurry. I was also called, and on arriving found the baby smiling, and it continued to smile, so that the twenty grains of bromide of potassium had not done it any harm. Yet I do not say the drug should be given in so large doses at that age. The case simply showed that what was considered a poisonous dose did not affect the baby at all.

When you are called to a case of epilepsy in a baby of two years, you can safely give it twenty-five grains or two grammes of the bromide of potassium in the twenty-four hours. Give half the dose at night. It may take a quarter of the dose in the morning, a quarter at noon. As a rule, it is not necessary to increase the original dose much. Sometimes it is desirable to diminish it. The diminution may take place in the amount of each dose, or you may drop one or two of the doses during the day. At all events it will never do to allow the bromide to be discontinued altogether if it is to do good, and it certainly does do good. The attacks under its influence become less in number, or less in violence. The bromide must be continued for years, for the attacks will return. You may see cases in which epilepsy may seem to be cured, but before five years are over you ought not to feel sure. Cases have been reported in which the attacks returned after having been in abeyance twenty years. So we ought not to crow too soon. *Petit mal* must be treated the same as the fully developed disease.

There are a number of individuals, children and adults, who do not bear bromide of potassium well. Some have an eruption on the skin. Persons who suffer from acne do not bear it well. The eruption which comes out after the

administration of bromide of potassium is of an acne form, and those who have acne in the beginning, will not, as stated, tolerate the drug well. In them it is best to stop a week and begin again. It may be you can find something to give between.

Bromide of potassium is not tolerated so well during the summer as during the winter usually, therefore the dose should be diminished during the summer. Children who suffer from somnolence ought not to be given more than one large dose. They ought to be kept from overwork, both physical and mental. Those who are sleepless, or who have a large number of attacks from temporary excitement, traveling, etc., ought to take chloral hydrate in ample doses.

If you cannot give bromide of potassium, what can you do? Valerianate of zinc is a fairly effective remedy. A baby of two years might take two grains a day for a long time. The zinc seems to be the effective remedy in the compound. In a large number of cases in former years we have given sulphate of zinc. We have commenced in epileptic patients, five to seven years old with, say, half a grain of the sulphate of zinc three times a day, increasing constantly.

In this case we might dissolve a drachm in a pint of water, and tell the mother to give the baby three doses daily, the first dose of one teaspoonful, (sixty drops), increasing each dose by one drop, so that after having taken twenty doses the amount would be a teaspoonful and twenty drops. After twenty days the dose will amount to two teaspoonfuls. In that way you can increase the dose to four times and even six times the original quantity. Children bear it very well, and it certainly has proved effective in quite a number of cases. A time will come, however, when the stomach will not tolerate it any longer and vomiting will occur. Then it will be time not to stop it altogether, but to give, perhaps, a teaspoonful less. In this way we have given the sulphate of zinc four, six, eight months in succession, and

in quite a large number of cases we have been, as before stated, fairly successful.

Another remedy which has been given is the nitrate of silver, but to have effect it must be given a long time, and there is always a possible danger of its discoloring the skin. The blue discoloration of the skin, argyria, which has sometimes taken place, is due to the influence of light on the nitrate of silver in the tissues. Years ago there was a person so discolored standing at the entrance to Barnum's Museum. I have discolored two persons in my life myself. One took the nitrate of silver some thirty years ago for epilepsy. He turned bluish before it was stopped. The other case was that of a lady who lived until a short time ago, suffering much from chronic gastric catarrh. I gave her nitrate of silver in pills for twenty or twenty-five days, with warning not to have the prescription repeated. The pills did her so much good, however, that she thought she knew better, and without coming to me again, she had the pills repeated by the apothecary. The result was that when I saw her again, after a year and a half, she was rather strongly blue.

Arsenic is another remedy which sometimes does good. It serves a better purpose in other nervous affections, for instance chorea, but sometimes when you cannot continue bromide of potassium in epilepsy, arsenic will do very well for a time. It ought to be given in increasing doses. Mix one part of Fowler's solution with, for a child of five years, twenty parts of water. A teaspoonful of that will contain about three drops. The dose may be increased by one drop a day, or increase every dose by one drop, and in three weeks or nine weeks you will be giving a double dose. Thus you can greatly increase the dose of arsenic and mostly without any injury to the system because of the slow habituation to it.

Those are the principal remedies which may be used in epilepsy. As a rule, however, probably most of us will always fall back on bromide of potassium with such restrictions as are given by the condition of the skin and by the condition of the brain. It has the peculiar effect of

benumbing nerve action. It has the local effect, for instance, of benumbing the superficial nerves of the pharynx and a child which has been taking bromide of potassium will stand a good deal of manipulation of the throat which it would not do before.

Do not forget that it is not necessary to give the remedy in equal doses. Give a good dose at night for its influence on the nervous system. This is particularly important in half grown children and adults who are apt to have their attacks at night. Besides, when a bigger dose is administered at bed time, its disagreeable effect, if any there be, is carried off during sleep.

Clinical Memoranda.

UMBILICAL FÆCAL FISTULA IN AN INFANT CURED BY RADICAL OPERATION.

(ILLUSTRATED.)

By FRANCIS J. SHEPHERD, M.D., C.M.,

Professor of Anatomy and Lecturer on Operative Surgery in McGill University ;
Surgeon to the Montreal General Hospital.*

CASES of umbilical fæcal fistula in infants are comparatively rare, and when they occur are caused by the inclusion of prolapsed intestine in the ligature used to tie the cord. This intestine may be a herniated portion of small bowel, or, as is most commonly the case, a persistent omphalo-mesenteric duct extending down into the cord. This duct not infrequently persists as a diverticulum from the ileum, ten to sixty inches from the ileo-cæcal valve. It is then called Meckel's diverticulum, and is usually two to three inches long, and of about the same diameter as the bowel. It occurs in about two per cent. of individuals, and chiefly in males. In some rare cases it is connected with the umbilicus by a cord which represents the obliterated

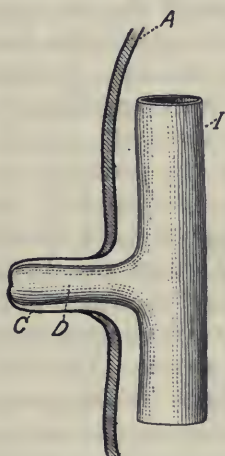
* Read before the Montreal Medico-Chirurgical Society, November 20, 1891.

ated duct, and is one of the causes of internal strangulation of the bowel. In still rarer cases the duct is patent not only as far as the umbilicus, but even some distance down the cord. In such cases when the cord is ligatured at birth the duct is included in the ligature, and as the ligature ulcerates through and separates, it cuts through the duct, and hence a fæcal fistula is the result. Now the cure of these fistulæ has always been difficult and unsatisfactory. Holmes asserts that as far as he has seen they are incurable, and Mr. Owen "Surgical Diseases of Children," says no plastic operation or cauterization is apt to succeed, but asserts that he has cured two cases by cleaning out the contents of the bowels with rhubarb and soda, and then keeping the bowels at rest for a fortnight with opium in small doses. At the same time the fistula is covered by a thick dressing of vaseline and eucalyptus. It seems to me that only very small fæcal fistula could be cured by these means, and that the more scientific procedure is the one I adopted with success in the following case :

CASE.—Arthur B., of Moosejaw, N. W. T., aged three months, a strong, healthy, well-nourished infant, was admitted into the Montreal General Hospital, September 18, 1891, suffering from a fæcal fistula at the umbilicus. At birth nothing seemed amiss with the cord except that it was thicker than usual. The ligature came away on the fifth day, and the nurse noticed that flatus was escaping from the navel next day. Later fæces appeared, and have been discharging in larger or smaller quantities ever since. After the ligature separated, Dr. Turnbull, under whose care the case was, writes me that the stump of the cord appeared much as in other cases, but in a few days began to protrude or grow outward.

The condition of the umbilicus on entrance into hospital was as follows : "At the site of the umbilicus a protrusion, which is in size and appearance like a child's penis ; it is one and a half inches long, with an opening at the extremity looking much like the preputial orifice. The outer surface of the protruded portion is red and vascular,

bleeds easily on handling, and very much resembles mucous membrane. There is an areola some three or four inches in diameter around the umbilicus, which is in a raw, red, eczematous condition, owing to the parts being kept continually moist by the constant discharge from the end of the protrusion. On introducing a probe, it enters freely for some distance, and on withdrawing it some yellow fæces escape. The fistula is easily dilatable, and a pair of Péan's artery forceps can be passed in with ease." Now as to the nature of the protrusion: it was either a portion of prolapsed intestine everted so that the mucous membrane was external, or it was the stump of the cord denuded of epithelium and in an eczematous condition.



A, Abdominal wall; C, Stump of cord containing (D) diverticulum from (I) ileum.

The child was shown at the Meeting of the Canadian Medical Association, which happened to be meeting in Montreal at the time, and among others it was seen by Mr. Bryant, of London. The general opinion was that the protrusion was due to everted mucous membrane probably from a persistent vitelline duct. That the fistula was connected with a Meckel's diverticulum was probable, for the excellent condition of the child led me to the con-

clusion that the fistula was either connected with the large bowel or the lower end of the small intestines.

Operation for radical cure having been determined on, the patient was put under chloroform on September 19th. An incision was first made through the protrusion, near to its exit from the abdomen. This incision revealed the fact that it was not mucous membrane, but skin deprived of epithelium ; for, on cutting it through, the peritoneal cavity was entered and a portion of bowel seen to be protruding through an opening at the umbilicus ; this bowel, by its open extremity, was continuous with the fistula already described. It was now determined to enlarge the incision by opening up the abdominal cavity above the umbilicus, and to examine further. This was done, and the protruded portion of the bowel was drawn out and found to be a diverticulum from the small intestines. The diverticulum was cut off close to where it was given off from the gut, and the opening thus left sutured by a double row of continuous silk sutures, the outer row of which included only the peritoneal coat of the bowel. The sutured bowel, after having been found perfectly water-tight, was dropped back into the abdomen, the stump of the cord cut off and the abdominal wound closed with three silkworm-gut sutures. The wound was dusted over with iodoform, covered with absorbent cotton, kept in place by adhesive plaster. The child's condition after operation was excellent. For twenty-four hours it was given no food, and then was allowed to have the breast for a few minutes at a time every two hours. Having to leave town, Dr. James Bell kindly looked after the case for me. The stitches were removed on the sixth day, and the wound was found to be perfectly healed. The child's condition continued good, and he left the hospital on the 25th of September, and went home to the Northwest as well as ever on the 30th. I have since had a letter from Dr. Turnbull, dated November 18, 1891. He writes that the child is in the best of health and growing rapidly.

VESICAL CALCULUS IN A NEGRO BOY; SUPRAPUBIC CYSTOTOMY; RECOVERY.

[Service of De Forest Willard, M.D.]

BY HOWARD S. ANDERS, M. D.,

Late Resident Physician, Presbyterian Hospital, Philadelphia.

The factor of *race*, as an element in the etiology and history of stone in the bladder, has been dwelt upon by most systematic surgical writers with more or less definiteness and with marked unanimity. Thus, Prof. Agnew states: "In the United States, it would appear that the negro population enjoy a much greater immunity than the white." Gross asserts, that the different varieties of the negro race of this country are much less subject to calculous diseases than the whites. He ascertained from reliable statistics, that in 443 cases of stone in the bladder occurring in seven of the Southern States, 63 lithotomies were practiced upon negroes and mulattoes, as compared with 380 operations upon white persons. Again, to quote the late Prof. Henry H. Smith in his "Practice of Surgery": "It is said to be a rare thing to see a negro affected with stone. Out of a very large number of cases seen by me in this country and in Europe, including a close observation of Civiale's wards for many months, I do not remember to have noticed more than two cases in the negro." In the monograph by Keyes (Ashhurst's *International Encyclopædia of Surgery*), we read that "Livingstone failed to find stone among the natives of Central Africa. . . . Rayer says: "that the negro escapes in Egypt, while the Arab suffers. Mastin collected 3,039 lithotomies in America, and found only 102 put down to the negro, and 31 to the mulatto." Singularly enough, Sir Henry Thompson (*Diseases of the Urinary Organs*) does not even mention the relation of race to the prevalence of calculus; but Erichsen, Coulson, and other foreign surgeons, accord with and quote American authorities, reasserting the marked exemption of the negro race from this affection.

These observations would seem to justify us in relating the history of an additional case, without, it is hoped, incurring the justly depreciative allusion made recently by Dr. S. Weir Mitchell¹ to "mere case reports." The notes are as follows: Geo. R., four years of age, *colored*, was brought to the Presbyterian Hospital, complaining of sharp pains during and after urination, most marked at end of penis. At times, the boy desiring to urinate, would pass a few drops, or, perhaps, a few drachms of urine, and then be seized with most intense vesical and reflex pains. These pains were so severe as to cause him to scream, to writhe in a spasmodic agony and to pull violently at his prepuce. The mother remarked that these symptoms were—to a less degree—first noticed about one year previously; that the urine passed, often had a "milky" deposit, and sometimes, blood. He had been treated elsewhere for cystitis, his bladder having been sounded negatively as to stone.

On admission, examination *per urethram*, showed the presence of a hard, smooth, apparently nut-sized mineral body, almost immediately after the introduction of the steel sound, and during ether anæsthesia. The child's general health was fair. The nurse-in-charge of the children's ward was instructed to elevate the boy by the heels when the paroxysms of pain were intense, so as to allow the stone to gravitate from the sensitive trigone of the bladder. This manœuvre was almost invariably effective in lessening the duration and the severity of the tenesmus.

One week after the boy's entrance into the hospital, Dr. Willard performed supra-pubic cystotomy, in the presence of the surgical staff. Incision about one inch long. The mural fat was rather abundant for such a lean child. The bladder was injected with a warm boric-acid solution, but the viscus in children is so long and narrow, that when the transversalis-fascia had been incised, and the loose sub-peritoneal fat reached, it was difficult to detect the bladder, since it had been carried very high up by the colpeurynter. This delay made the operation much more

¹ President's Address, Cong. Amer. Physicians and Surgeons, Sept. 23, 1891.

tedious than the ordinary lateral perineal incision. Bleeding was very free, on cutting the bladder-wall; but it soon ceased. The stone was found to have a delicate, fibrous, pendulum-like attachment to the vesical mucous-membrane; as well as a thin fibrous attachment, after its extraction with the fenestrated, scoop-bladed forceps. Chestnut-sized, oblate in form, brownish-gray and sabulous, the calculus weighed, when dry, 48 grains (Apoth.). A microscopical examination of scrapings revealed the amorphous and triple phosphates.

Rubber drainage-tubes (2) containing a strip of sublimate gauze in each, for capillary drainage, were inserted; the wound approximated at the angles by two cat-gut sutures, made as aseptic as possible and covered with plenty of dry gauze to absorb the discharges. The operation was uncomplicated; the patient rallied nicely.

A week subsequent to the operation, the temperature had never risen above 99° P. M. Wound—healthy; tubes removed and abdomino-vesical aperture was packed loosely with dry antiseptic gauze. Meanwhile, the boy was induced to pass urine by the urethra every two hours daily, and every four hours, at night. He was allowed plenty of water to drink from sunrise until four o'clock in the afternoon; then none until next morning again, unless absolutely necessary. No pain was complained of; on the contrary, the child was remarkably apathetic while in bed, though intractably vicious while convalescing. He passed a little blood, *per urethram*, a few times, and dribbled some urine also. Two weeks after the operation, the abdominal wound had healed by granulation. General health—good. During the third week, he urinated normally in every way; and thirty days after the operation, was discharged—evidently cured.

The above case sustains at least two points of noteworthy interest, namely, its comparative rarity (as an instance of stone in the bladder of a negro); and its evidence of the truth of the allegation that negroes bear surgical treatment peculiarly well, this dusky little patient having manifested no shock, whatever, after operation, and speedily

recovering with the most active reparative power and energetic constitutional reaction. He was practically well in fourteen days. The method of inversion of the body adopted by Dr. Willard to relieve the intense pain of the paroxysms; and the plan of continuous capillary drainage, subsequent to operation, are also worthy of notice.

ASPHYXIA NEONATORUM.

BY C. W. M. BROWN, M.D.,

Elmira, N. Y.

June 15, 1891, I was called to see Mrs. C., aged twenty-eight, primipara, who told me that she had been taken with labor-pains at one A.M. Pains were half an hour or more apart. Os was dilated to the size of half a dollar. Labor continued with occasional intermissions of one, two, or three hours, until the morning of June 19th, when the os was fully dilated, and the head at the brim of the pelvis. Soon the pains flagged and finally ceased altogether. The woman was exhausted.

I had used chloral and sitz baths to assist dilatation of the os, morphia sulphate twice to procure sleep for a short time, and quinine to strengthen the pains—all with slight apparent effect.

Dr. J. A. Westlake then saw her with me.

I catheterized her and delivered with forceps at twelve, noon, of a large male child weighing, by estimation ten or eleven pounds.

The child's skin was greatly congested, of a dark, purple color. It did not move, and showed no signs of respiration. Pulse beat with slow, hesitating stroke, only twenty to twenty-five times a minute. We immediately cut the cord and allowed the end towards the child to bleed two or three drams. Cleansed the child's mouth and throat of mucus. Placed the child in a warm bath, and sprinkled with cold water. Slapped the child sharply with towel wet in cold water. Tried Sylvester's and Schultze's

methods of artificial respiration. All with no apparent result.

Then I applied my mouth to the child's mouth and blew into it. The chest filled well, followed by expiration, and after a brief interval a spasmodic respiration took place. After a considerable number of repetitions of this process two or three respirations occurred, when respiration again ceased, when I again blew into its mouth and respiration was again established.

This had to be repeated a great many times before respiration became fully established at the end of an hour and a half of unremitting labor.

Neither of the methods of artificial respiration or external stimulation of any sort seemed to produce any good results except the mouth to mouth expansion of the chest.

While the prognosis is usually unfavorable in these cases we must conclude with Busey *: "The success of those who have carefully and skilfully practiced the methods of resuscitation has been sufficient to make it obligatory upon every obstetrician to exhaust the resources of science to restore and preserve the life of every still-born child."

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Regular Meeting held, November 12, 1891.

DR. AUG. CAILLE, *Chairman*; DR. WALTER LESTER CARR, *Secretary*.

The Chairman announced as the first feature of the programme for the evening, the exhibition of a *modification of Soxhlet's apparatus* for sterilizing milk by Dr. Louis Fischer. Dr. Fischer premised his remarks with the statement that it was now conceded by all medical men, that the best substitute for human milk was cow's milk which had been sterilized. Recently while abroad, the speaker had visited in company with Dr. Ferguson of the New York Hospital, a large steril-

* American System of Obstetrics, Vol. I., p. 514.

izing institution in Germany owned by Auerbach, and conducted under the patronage of Baginsky. He and Dr. Ferguson had drunk some milk in this institution in July last, which had been sterilized the previous January. It was found to be perfectly sweet and pure. Jacobi, Caillé and Siebert had been the pioneers in establishing the method of sterilization in this country. Thirteen years ago, Jacobi had taught that milk should be boiled and put in tightly corked bottles, with the mouth turned down. What Soxhlet has done for this method in Europe, Caillé has done in America. The speaker's modification of the original apparatus was in a different adjustment of the cork, which constituted the greatest objection to the original process. The speaker's cork and its workings were demonstrated to the society. If the milk has been successfully sterilized, a light blow on the bottom of the bottle gives a peculiar click, which is a test of proper sterilization. If the cork is removed, the ingress of air brings to an end, of course, the process of sterilization. Milk prepared by this process, and with the modifications suggested, keeps perfectly for months or longer, and the colonization of bacteria is absolutely prevented.

Dr. Scharlau, in the discussion which followed, stated that he had not had any personal experience with the new apparatus, but had seen it in general use abroad, and heard it spoken of very highly wherever used. Dr. Jacobi had never seen it in use but thought favorably of its usefulness.

Dr. Carr read a paper giving a synopsis of the work done at the recent Congress of American Physicians in Washington, D. C., by the New York members of the American Pediatric Society, the youngest organization in the Congress (1888). The object of the writer in limiting his work to the New York members of the society, was not to disparage the work of others, but for the stimulation of our home members to renewed efforts in the future. Of a total of twenty-five papers read, twelve were by New York members and the discussions were actively participated in by others. Among the papers read, the writer mentioned, with the discussions: "How to prevent Complications and Sequelæ of Scarlet Fever," by Dr. J. Lewis Smith; "Pneumonia," by Dr. L. E. Holt; "Calomel in Croup," by Dr. Dillon Brown; "Intubation," by Dr. O. Dwyer; "Lavage," by Dr. C. G. Kirby; "Scorbutus," by Dr. Northrup and "Perityph-

litis," by Dr. Fruitnight, besides other papers by Drs. Jacobi, F. Huber, Seibert and J. Lewis Smith.

The paper of the evening was read by Dr. Wm. H. Porter and was entitled "The Physiological Importance of the Proximate Principles and their Practical Utility in the Food Stuffs and in the Nutritive Processes of the System."

In his paper the writer discussed elaborately, the chemistry of food and the relative values of the different groups of earthy salts, carbo-hydrates and proteids in the production of energy, heat, fat and bone. The elimination of various food products, and the forms in which such elimination took place, was graphically illustrated by a series of charts, greatly simplifying an otherwise abstruse subject. The paper contained many practical facts bearing upon the subject of proper food in health and disease and should be read in its entirety, as its nature is such as to make an abstract comparatively valueless.

The chairman, after expressing the unqualified thanks of those present for the excellent paper read, outlined as points for special discussion bearing upon the subject matter of the paper. 1st. The value of water. 2d. Of chloride of sodium. 3d. Of the carbo-hydrates.

Dr. Wm. H. Thompson opened the discussion. He accepted the suggestion of the chairman, and referred first to the value of water. He had found in lithæmic patients, with high tension pulse and deficient oxidation, that sending them to some springs was always beneficial, not so much on account of the character of the water, but the amount drank. It is a question as to what is the source of all the water excreted by an individual. It is certainly not proportionately represented in the amount consumed, as water or fluids in food. He had recently tested this matter in six cases of diabetes, the patient, in one instance, passing three times as much water as he took in food and drink. All of the six passed more than they consumed. He believed some of it was taken in by absorption of moist air and inhalation. Weight could be lost and gained through the medium of water with wonderful quickness. Workmen in glass factories lost pounds in a few hours. He referred to the case of a jockey who had trained down for a race, and who weighed just before the race and then drank a cup of tea, his weight being increased thereby six pounds. He, himself, had lost a pound from taking a

Turkish bath, and had regained it an hour later. Hot vapor baths are dangerous for those with weakened blood vessels because of the increased pressure resulting from absorption of moisture. In his uric acid patients, he always inquired how much water was drunk, and had been astonished to find the average for all men so low. The excessive use of water increased waste. Mineral waters are injurious in every disease in which repair does not equal waste, as shown by a loss of weight. As regards chloride of sodium, he wished to add one fact to the many mentioned by Dr. Porter, bearing upon the value of this salt. He believed it to be *Nature's* antiseptic. Its use was indicated in all conditions of disease manifesting a tendency to sepsis; diarrhœa and fermentative dysenteries were benefited by its use very markedly, and it was of much value in diphtheria. One striking evidence of its value was to be seen in the fact that it was the chief ingredient in all of the celebrated mineral waters, having real value in disease. The most noted of all, the geyser, exhibits a peculiar parallelism in the ratio of salt therein contained to that found in the human body. The speaker had found that those patients who were benefited most markedly by the saline mineral waters were cases of portal obstruction, with defective oxidation.

Dr. Thompson expressed himself as emphatically opposed to the sentiments expressed by the writer of the paper, which were deprecativè of the value of the carbohydrates as food, and which elevated the proteids to a position of relatively much greater importance as food stuff. Chemistry teaches us much that is of great value, and he esteemed its teachings highly, but he was not in the habit he confessed, of constantly consulting his chemistry at the bedside of a patient. You can grind a watch to powder and weigh it, and separate the glass from the gold and the other material, but this process will not tell us how the watch worked as a machine. Our lesson as to foods can be best learned from *Nature's* standard, which is mother's milk. Compare it with cow's milk. The caseine in the latter is three times as much as in the former. The baby does not need caseine, the calf does, as the baby has no expenditure of muscular power, while the calf has. The infant requires more sugar and you find, therefore, a much larger percentage in human milk. Fats are found in larger quantity also (5 per cent. more). This matter is important. We do not understand the full significance of the

word "starvation." It is the condition of disease we most often meet, through faulty assimilation. During the first years of child life, its brain is most active in growth, and its perceptive powers are developing with wonderful rapidity. This period and type of development requires food-producing energy, and such children need above all things, cod liver oil. This need is instinctive as demonstrated in a child's comparative fondness for cod liver oil. Albuminous matter as a food was not definitely understood. Take beans, for example, which have, according to the diagram on the board, a large percentage of proteid material and yet it was not an appropriate food for this period. The leguminous proteids as foods, in his experience, had resulted in the production of more *wind* than energy.

Dr. Zeh spoke of the value of a correct knowledge of appropriate foods and defects of assimilation in disease. He used with advantage as an aid to digestion, pancreatin, pepsin and ox-gall.

Drs. Fruitnight and others took part in the discussion, which was closed by Dr. Porter.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Blackader: Infants' Food. (*Montreal Medical Journal*, August, 1891.)

Practically, all unite in regarding cow's milk, or some preparation of it, as the only serviceable substitute for human milk. There are certain difficulties in its preparation which must be clearly understood to be overcome.

1. Cow's milk contains about double the amount of albuminoids that human milk does, while human milk contains a slightly larger amount of fats and sugars. Human milk is always alkaline, cow's milk usually acid.

2. Cow's milk always contains microbes; frequently they are of the varieties which produce poisonous products.

3. The supply of cow's milk being unlimited, we have not the same check upon the amount that we have when the infant is on the breast, hence we are apt to have added to the other difficulties that of over-feeding.

Either of these difficulties alone might defeat an attempt to nourish an infant with cow's milk; while opera-

ting together they render the problem in many cases very difficult. The author had hoped that with increasing knowledge of the composition of the two milks, and of the proper amount to be administered, together with sterilization, that the problem of artificial feeding had been solved. While many cases yielded gratifying results, hopes in others were disappointed. Changes which milk undergoes in the sterilizing process may be epitomized as follows:

I. The starch liquifying ferment which exists in cow's milk in minute quantities is destroyed when the heat rises above 165° F.

II. A portion of the lactalbumen is coagulated.

III. The casein, after the action of prolonged heat, is less readily coagulated by rennet, and yields slowly and imperfectly to the action of pepsin and pancreatin.

IV. The fat globules are injuriously affected by the heat. The fat is freed to some extent, and after standing, small lumps of butter are sometimes observed on the surface of the milk, while the portion not freed has a decidedly lessened tendency to coalesce. When sterilized and unsterilized milk are churned, it is found that the unsterilized yields more butter and in less time.

V. Milk sugar, by long-continued heating, is completely destroyed.

It would appear, therefore, that stérilized milk is less readily and less perfectly digestible than raw milk. Yet, it is to be preferred to raw milk swarming with bacteria. Under its use in the large cities the percentage of infant lives saved is increased and the percentage of summer diarrhœa is decreased. In the country or where fresh milk can be procured, the process of sterilizing is if possible to be avoided. The chief difficulty lies in securing the proper amount of heat. For ordinary purposes a temperature of 155° F. is sufficient, and the milk is not materially changed at that temperature.

* In some instances the author believes that condensed milk may be substituted for a short time. It has the disadvantage of being deficient in fats—the cream being to a great extent removed by the process of condensing, to avoid rancidity in the prepared article.

Of the cereals used for infant food, barley, wheat, and oatmeal are the most commonly employed. Of these, the author prefers barley. An excellent preparation is barley flour submitted to the action of heat of 212° F. for five or six days. It may be advantageously added to the milk

for younger children and in older children, may form a fair proportion of the food.

Goodhart: An Address delivered before the Section of Diseases of Children of the British Medical Association. (*British Medical Journal*, August 1, 1891.)

The author, after referring to what he believes to be the exaggerated importance attached to the microbe by the pathology of to-day, lays special stress upon the constitutional element in the production of disease. He believes that certain diseases of adults appear in childhood in disguised form. For example, gout as such, is not seen in children, but he believes appears as rheumatism. The uric acid diathesis of childhood certainly elucidates certain conditions of adult disease. White, pasty fæces are frequently precursors of dyspeptic troubles in later life. The acute pulmonary catarrhs developing without apparent cause in certain children are not infrequently followed by asthma a few years later.

Warner: Hygiene of School Life. (*The Lancet*, August 15, 1891.)

Dr. Warner said that the scientific study of children should be grounded on observation, and his remarks were made upon the observation of 50,000 children seen in schools. Schedules were employed for recording observations, separating points in physiognomy and development from those due to nerve action, and among the latter, a number of new signs were introduced for the purposes of such inquiry.

Twelve classes of children were defined and determined by observation.

The general outcome of the inquiry indicated the advisability of studying the pupils in two ways:

(1) By mental tests, and (2) by physical examination or inspection.

Morris: Ringworm in Elementary Schools. (*The Lancet*, August 15, 1891.)

Microscopic examination, cultivation and inoculation experiments, incontestably prove that all the phenomena of the disease, however varied in their clinical manifestations, are due to a fungus which invades the upper layers of the epidermis. This fungus consists of mycelium, representing the mature elements, and spores—so to speak—the seeds which later, either by personal contact or through the medium of the atmosphere, are capable of

transplanting the disease on a suitable soil. The extreme contagiousness of the malady is thus accounted for. Many of the perplexities are due to the difficulties in recognizing its earlier manifestations, which are too often regarded both by parents and school authorities as merely "scurfy heads."

When ringworm attacks the body it is easily and quickly eradicated, as the fungus lies near the surface. The obstinacy to treatment of ringworm of the scalp is due to the anatomical fact that the fungus is found also around the roots of the hair in the deep hair sacs or follicles.

Among the poor, owing to indifference, lack of time, and skill, the disease is certain to last many months, and not infrequently for years.

The author discusses the attitude of school authorities to the disease, and makes these suggestions:

1st. Systematic inspection.

2d. To eradicate the disease without interrupting the educational progress of the child, he would establish separate schools, or isolate a single class-room for those affected.

Mansilla: Treatment of Diphtheria. (*Anales de Obst. Gin. and Ped.*, October, 1891.)

The theory of the treatment which is adapted by the author is based upon the microbic character of the disease. He has made use of the following formula with much satisfaction:

R	Calomel	0.40 grams.
	Ammon. chlor.	2. "

This should be divided into twenty powders, one of which should be taken every two hours until symptoms of salivation appear.

The parts should also be sprayed every two hours with an atomizer, the same prescription (as above) being used, and on alternate hours they should be sprayed with lime-water. The strength must be sustained with sherry wine, coffee with milk, and such other food as the patient can tolerate. If the respiration is interfered with by false membrane, vomiting should be provoked with ipecac or tartar-emetic, and these means may be supplemented, if necessary, by tickling the pharynx and uvula with a feather. If the attack be apparently one of croup and not diphtheria, he would use the carbolic acid treatment of Bernier, or the sublimate treatment of Bouffé. In ten of his cases of diphtheria, tracheotomy was necessary. All

were followed by a fatal result, with one exception, and the history of the latter is given in detail.—

Handelstamm: Treatment of Rhachitis with Phosphorus. (*Anales de Obst. Gin and Ped.*, August, 1891.)

The author has treated 216 cases of rhachitis with phosphorus. In 120 the cure was complete, and in 43 others there was marked improvement. In many of the other cases it was impossible to continue the treatment on account of intercurrent diseases. The duration of the treatment was from one or two months to one year, according to the severity of the disease. The phosphorus was administered in simple emulsion or with cod-liver oil. The following conclusions are submitted:

1. Phosphorus acts as a curative agent with greater efficiency, rapidity, and security than any other agent.
2. Administered in small doses, even for a long period, it does not produce unfavorable symptoms.
3. It corrects in a very efficient manner the nervous symptoms of the disease.
4. In the majority of cases the rhachitic lesions of the bones cease developing from the time that the treatment is begun.—

II.—MEDICINE.

Northrup, W. P.: Tuberculosis in Children. Primary Infection in Bronchial Lymph Nodes. (*N. Y. Medical Journal*, 1891, liii, 201.)

The object of this paper is to illustrate and strengthen the recently developed fact that in the great majority of cases of tuberculosis in children the seat of primary infection is in the lymph nodes clustered about the bifurcation of the trachea and the roots of the lungs.

Tubercular infection in the tissues of the body means tubercle bacilli—their presence and products. The all-important source of germ supply is the dried, pulverized sputum of phthisical patients. The bacillus gains entrance to the body by (1) aspiration—through the respiratory tract; (2) ingestion—through the intestinal tract; (3) accidental inoculation—through abraded surfaces; (4) the placental circulation—congenital. The sources here mentioned are in the order of their importance and frequency. The first avenue of entrance, the respiratory tract, is almost exclusively the one of interest to us.

In speaking of the comparative ages of the tubercular lesions, the discrete, miliary tubercles are assumed to be of

more recent formation than cheesy masses ; that cheesy masses are more recent than calcareous masses or shrunk-en, dense fibrous tissue or cavities.

From the one hundred and twenty-five cases, whose records contain the details suitable for our purpose, thirty-four must be discarded, because the averages were so extensive that the seat of primary infection was not clear ; the bronchial nodes were large and cheesy, likewise the mesenteric ; the lungs contained tubercles, so did the liver, spleen, kidneys and meninges.

Twenty cases of general tuberculosis (that is cases in which there were tubercles in the lungs and in other organs besides) showed that the apparently oldest lesion was in the respiratory tract. In forty-two cases of general tuberculosis the only cheesy masses were in the bronchial lymph nodes. The miliary tubercles involved, besides the lungs, one or more organs of the abdominal cavity or the meninges. In nine cases the tubercles of the body were limited to the bronchial nodes and the lungs, the latter containing only discrete, glassy, miliary bodies, while the bronchial nodes were far advanced in degenerative changes. In thirteen cases, there were tuberculosis of the bronchial nodes only. Most of these patients died of infectious diseases, many of them after a few days' illness, from measles, diphtheria, with invasion of the larynx and bronchi, and pneumonia.

We have shown that in a vast majority of our cases the oldest lesion was in the respiratory tract ; among them was a very significant group of nine cases in which the bronchial nodes were cheesy, and the only remaining tubercles of the body were in the lungs, and were discrete, glassy, miliary bodies, obviously recent. The pointing here is unmistakably to primary node infection and secondary involvement of the lung. Finally there were thirteen cases, in which the tuberculosis was confined to the bronchial lymph nodes, there being no other tubercles in the body.

As a short statement of the manner of infection in most cases of spontaneous tuberculosis in children, the following may be allowed, especially as it is wholly borne out by authorities :

Tubercle bacilli enter the respiratory passages with the inspired air, lodging in the mucus of the air-passages or the alveoli of the lungs ; they may pass through the mucous-membrane at any point, be taken into the lymph spaces, traverse the lymph canals to the nearest nodes,

the power of the tissues to withstand their tendency to grow and reproduce the lesion in which they were bred. and be retained. Their subsequent career depends upon According to this power of resistance, they will die or remain inactive for a long period, or will develop nodes, known as scrofulous, or may lead on, when the powers of resistance are depressed, to such changes as have been detailed in the paper.

Dorland, W. A. N.: *The Differential Diagnosis of Nasal Ulcerations.* (*Annals Gyn. & Pæd.*, 1891, iv, 694.)

(1.) *Age.*—Congenital specific rhinitis invariably appears at some period before the fourth month of life. This is in strong contrast to the remaining diseases, which are essentially affections of early youth, and will at once explain the nature of an ulceration occurring in the nasal passages of a very young infant, especially when associated with some specific parental history and a characteristic rapid clinical course. Lupus usually appears between the third and twelfth years; tubercular rhinitis, likewise, is a disease of early youth, occurring in those of a scrofulous diathesis, while rhinitic atrophica occurs between the fifth and fifteenth years.

(2.) *Site.*—The location of the ulceration is not of much value in a diagnostic sense, since the most common seat for all ulcerations is the septum narium. Tuberculous ulcerations may appear on the floor of the nose, or upon the lower and middle turbinated bone, as well as on the septum. The ulcerations of the atrophic and the specific forms are always confined to the septum.

(3.) *Size.*—Lupus ulcerations are always large with an apparent gain of tissue. They appear as non-vascular and soft elevations, covered with a thick, grayish or whitish mucus. They are also associated with the characteristic lupoid cicatrization lines, radiating from certain centres. Tubercular ulcerations are invariably small and shallow, with no apparent loss of tissue, but without the apparent gain of tissue which characterizes the lupus ulceration. The ulcerations of the atrophic rhinitis are small and shallow, mere abrasions, but associated with the abnormal spaciousness of the nasal chambers due to the atrophy of its mucous membrane. The ulcerations of the specific disease are large, ragged, deep and rapidly excavating, and are covered with a profuse, dirty-looking yellow pus.

(4.) *Edges.*—They are irregular in all the forms, but in only the specific disease are they inverted, and with this

disease, likewise, is associated the characteristic bright red, glossy areola.

(5.) *Crusts*.—In lupus, they are broad and flat, somewhat granular, and of a red or reddish brown color. In the tubercular form they are also large and dry, but of a true brownish coloration. In the atrophic variety they are large and dry, but their color may range from a gray to a dark brown or even greenish tint. In syphilis, they are large, crater-like, and composed of necrotic tissue, are often bloody and are usually of a dark brown or black color.

(6.) *Discharge*.—In lupus we have but a scanty discharge, which is thin, sero-mucous in nature, usually with no odor attached to it, though at times it may become extremely offensive to the smell. Tubercular disease is accompanied by a profuse mucous or muco-purulent discharge of but slight or no odor. Rhinitis atrophica is accompanied by a thick, viscid, scanty, mucous or muco-purulent discharge, which contains numbers of the dry, vari-colored scabs, which are dislodged from the nasal chambers. The odor of this discharge is very peculiar and offensive, musty or resembling the odor of crushed bed-bugs. The specific disease is associated with a profuse, watery, acrid, muco-purulent or purulent discharge, which contains shreds of necrotic tissue, is frequently tinged with blood, and is possessed of a foul, intensely gangrenous odor which is at once very characteristic.

(7.) *Deformity*.—The atrophic and tubercular forms, as a rule, do not result in any visible deformity. In the specific form, however, we have the early flattening of the nasal bridge, resulting from the destruction of the nasal bones; while in lupus we have great destruction of the tissues, an eating away of the tip and alæ of the nose. The eroding action often spreads to the lips and cheeks with production of frightful deformity.

Townsend, C. W.: *Hæmorrhages in the New-Born*. (Boston M. and S. J., 1891, cxxv, 218.) Summary:

(1) Hæmorrhage in the new-born is, in nearly all cases, an acute transitory affection, beginning within the first week or ten days of life, and lasting from one to six days.

(2) The etiology of this form is perhaps best explained by the infectious theory.

(3) In very exceptional cases the disease is due to true hæmophilia, as it is seen in older children and

in adults. In a small number of cases it is one of the symptoms of syphilis or septicæmia.

(4) The mortality from all forms is about seventy-five per cent.

(5) Treatment should be guided by the knowledge of the transitory and, perhaps, infectious character of the affection, as it is seen in the majority of the cases.

III.—SURGERY.

Hinkson, J. R.: Laparotomy on a Child Ten Hours Old for the Cure of Congenital Umbilical Hernia, with Recovery. (*N. Y. Med. Jour.*, 1891, liii., 586.)

The child, a female, was healthy in every respect except for the presence of a tumor occupying the greater portion of the anterior abdominal wall. The tumor was covered by the expanded tissues of the cord and the peritoneum, and contained the liver and small intestines. It was elliptical in shape and projected an inch and a half beyond the surface of the abdomen, measuring fully two inches and a half in its transverse and about four inches in its vertical diameter. It was not pedunculated, and extended from the ensiform appendix to within an inch and a half of the pubes. The covering was quite tense and semi-opaque, with a few small cysts. No vessels were visible, but the liver could be plainly felt at the upper part of the tumor, which was most prominent. The cord was in the median line at the inferior apex.

The child was ten hours old at the time of operation. Having induced complete anæsthesia, and washed the abdomen with a solution of mercuric chloride, the cysts in the covering were first punctured, allowing a little clear serum to escape. An incision was then made in the upper part of the tumor and enlarged by cutting on a grooved director sufficiently to admit a finger. About half an ounce of sanguineous serum flowed from the wound. On introducing a finger, some adhesions were found over the right lobe of the liver, which were easily broken up. The membrane adjacent to the umbilical vein and the hypogastric arteries were then dissected away and the vessels ligated. The membrane was finally removed in connection with the suspensory ligament of the liver.

The edges of the opening were then pared with scissors and the abdomen was closed by first introducing several interrupted sutures of catgut about the middle of

the wound, which was afterwards completely closed by a continuous suture of catgut. A drainage tube was inserted between the stitches at the middle of the wound and an antiseptic dressing applied.

The closure of the abdomen proved to be an almost insurmountable task, on account of the great want of tissue. The tension on the sutures was so great at the middle of the opening that, had they been immediately drawn tight enough to bring the edges in apposition, they would certainly have torn out. To avoid this difficulty, both interrupted sutures were drawn as tight as permissible and clamped with artery forceps, this procedure being repeated several times until finally the edges were approximated. During this part of the operation the intestines frequently escaped from the abdominal cavity and were only replaced after repeated trials, much care being required to keep them from being tied in the sutures.

The operation occupied an hour and a half, after which the child vomited twice and then slept about a quarter of an hour, after which it nursed well and behaved in no way differently from any healthy child. Three days later, when dressing the wound, the catgut sutures, which had softened, gave way, none of them having pulled through, and the wound opened for nearly its entire length. Under chloroform, sutures of wire were inserted. At the next dressing, five days later, the wound had all healed except an inch and a quarter at the middle. In spite of effort with bare-tip pins and strips of adhesive plaster, this part of the wound was allowed to heal by granulation. The child made a good recovery.

Eagleton, S. Pott: *A Resume of the History and Practical Application of Hydrogen Peroxide in Surgical Affections.* (*Med. and Surg. Rep.*, Phila., 1891, lxiv., 582.)

In concluding my article, I think from the clinical as well as from the experimental evidence which has been deduced, we can safely sum up the action of peroxide of hydrogen in the treatment of surgical affections as follows: 1. Hydrogen peroxide is a positive germicide, and a possible stimulant to granulating tissues. 2. Owing to its special property of eliminating oxygen, it is of unparalleled value in the distention of suppurating sinuses and cavities, especially in the mastoid region or where it is almost impossible to reach unhealthy surfaces by other means. 3. The diluted solution is perfectly harmless and can with safety be used in any quantity. 4. The

strong concentrated solution, syrupy in consistence, is a direct irritant to all tissues and should never be used. 5. It possesses healing and cleansing qualities as well as those germicidal in nature. 6. When exposed to light, it loses strength; care should therefore be exercised in keeping the bottles well stopped with rubber corks, and in a cool, dry place. 7. Fibrin, cellular tissue, and some metals instantly decompose it. In contact with sugar and starch it eliminates carbon dioxide (CO_2). Albumen, gelatine, urea and cutaneous tissues have no effect upon it, while ammonia, aconite, tobacco and hydrocyanic acid increase its stability. 8. In washing suppurating surfaces, it should be used until oxidation ceases, thus showing a complete destruction of all existing purulent material.

Fenten, F. A.: A Case of Compound Comminuted Fracture of the Vault of the Cranium in a Child. (*N. W. Lancet*, 1891, xi., 251.)

The patient was a boy, five years old, who had been kicked by a horse behind which he had been lying. There was a laceration of the scalp extending from a point about half an inch above and one inch in front of the ear, to about one inch behind the same, ranging upwards and backwards; also a depressed, comminuted, fracture of the skull, the depression being over three-fourths of an inch deep, the wound bleeding freely. There was profound stupor with dusky face, surface of body cold, respiration irregular and snoring or blowing, pulse 80, small and thready. The right pupil was dilated and did not respond to light; the left normal or nearly so.

A small button of bone was removed with the trephine, and the depressed bone elevated. Several small spiculæ of bone and a large clot of blood were also removed. As soon as the effects of the ether passed off, the skin became moist, the pupils responded to light, pulse was fuller and regular, and respiration natural, but he remained unconscious for three days, during which time he was partially delirious, crying as if in pain. On the third day consciousness returned and he made an uninterrupted recovery.

Masser, F.: Short Considerations on Intubation in Children and Adults as Adopted in Italy. (*Med. and Surg. Report*, Phila., 1891, lxx., 205.)

Great difficulty was experienced in the practical introduction of intubation into Italy, and I myself was most

firmly opposed to it on purely theoretical grounds, being of the opinion that intubation, although by no means a bloody operation, was not always free from danger. My own researches and experiments have been, I am glad to say, mainly instrumental in dissipating these groundless fears and establishing on a sound basis the credit of intubation in Italy. I now rank myself among its warmest and most steadfast advocates.

In Naples, I was afforded a good opportunity for experiment. In eleven intubations in children, nine of these being for croup, I have had five successes, and these occurred in so striking a manner that the profession began to look favorably upon intubation, appreciating its great value in this disease. These children were not more than five years and not younger than eleven months of age. Three were twenty, three eighteen, and eleven months of age respectively; that is, these three were under the age of two years, a period of life which gives us bad results in tracheotomy, and this notwithstanding, I can record one successful case. Two other children were twenty-seven and twenty-nine months old respectively, who were suffering from croup, and in one recovery took place, although it was a secondary croup. The tube remained in the larynx from thirty-two hours to six days.

The writer also reports four successful intubations in adults.

Morgan: Cleft Palate. (*The Lancet*, September 19, 1891.)

Where there are no other defects of development, or of health, such as would render any operation dangerous to life, there are no clefts of the palate so formidable as to render the possibility of closing them hopeless. One must be carefully on the watch for these concomitant defects. Arrested development of the heart would certainly contraindicate operation.

The closure by artificial plates is objectionable. The initial proceedings are objectionable; in the next place a plate made for a child needs to be renewed at frequent intervals, because the constant pressure causes the cleft to widen, and particles of food finding their way into the nasal cavity set up ulceration, or at least irritation. The wires which secure the apparatus cause injury to the teeth.

But a greater objection is that any such obturators tend to prevent the natural tendency of these parts to contract,

and by pressure on the soft tissues indurate them to such an extent that no operative treatment can be undertaken later. As a rule, the slighter the cleft the earlier may operation be contemplated. This operation should never be attempted while any teeth are in process of eruption or whilst there is any sign of gastric disturbance. Thus it is wiser to decline to operate, even on the smallest cleft, before the age of two and a half years. When the fissure is more extensive, one must consider the general health of the child, the vascularity of the parts and the amount of tissue available. The child should be docile and capable of understanding the instructions of the nurse. Yet if one waits until the child is five or six years old or more, the more confirmed is the habit of talking with that peculiar intonation which is characteristic of this defect, and which is so difficult to unlearn. Therefore the writer advises that as soon as circumstances seem favorable after three years of age, the operation should be performed. Although his experience is that the later the operation is undertaken the better are the results, so far as primary union is concerned, but the worse as regards the faulty habit of talking.

The author has usually found no advantages in dealing with the hard and soft palate on separate occasions.

Various methods of placing the head have been tried, and raising the head upon an air pillow has been found preferable. This avoids venous congestion and less blood is lost.

Directions are given for the incision necessary.

The after-treatment calls for the greatest patience and tact on the part of the nurse. The child should be prevented from crying if possible; and only fluid food should be given for ten days.

The mouth should not be opened for inspection for a week if possible, and the patient should not be allowed to talk for a longer period. The stitches need not be touched until union is firm.

The author has performed the operation on sixty individuals—two adults, aged twenty-seven and nineteen respectively, and children.

In twenty-three cases complete union was obtained at the first operation. Only seven failed entirely at the first sitting. Some of the cases required a second, a third and even a fourth sitting.

Out of fifty-eight cases the final results were: Thirty-four cleft entirely closed; nineteen partially united, and only five failures.

Owen: Cases of Injury to the Epiphyses. (*The Lancet*, October 3, 1891.)

It is of interest to read the account of the after result in cases of injury to the epiphyses if the injury was inflicted during the period of life when their integrity is essential to the proper growth of the bones.

Examples of the first case are more common than the second, which is very rare.

1. *Arrested development of the ulna.*—A child when two years old got her hand into a chaff-machine. The blade cut off the lower epiphyses of the ulna. The wound healed, and nothing more was seen of the girl till she was fifteen years old.

Measurement then showed that the ulna had developed but little and that the radius, held on the inner side by the ulna, had grown in a curve. Thus the radius was like a bow and the ulna represented the bowstring. Subperiosteal resection of about an inch of the lower third of the radius was performed with an entirely satisfactory result.

2. *Arrested development of tibia.*—Aged fourteen years. Five years previously she fell and broke her leg just above the ankle—passing apparently across the junction of the lower epiphyses of the tibia. The effect of this was to check the due growth of the tibia. Like the previous, the curving of the fibula was outward, the tibia playing the part of bowstring.

As the girl walked with fair comfort no interference with bone seemed justifiable.

3. *Conical stump of arm.*—This case was a boy who had an amputation just above the elbow. Four years later he had to be admitted because the stump was conical and painful. An inch and a half of the bone was removed. A little more than a year afterward, two inches more of the stump had to be removed.

Remarks.—Mr. Owen refers to a paper in the *New York Medical Record* of last year, by Dr. Charles A. Powers, instancing the case of a boy of six years from whose humeral stump four inches and a half of bone had, in various operations, been thus removed.

The more important epiphyses in the growth of the humerus and of the tibia is the upper one. In the case of the bones of the thigh and forearm the lower epiphyses are the more important.

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Original Communications.

ON THE ASSOCIATION OF CONGENITAL WRY-NECK, WITH MARKED FACIAL ASYMMETRY. *

BY WILLIAM OSLER, M.D.,

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WILKS† speaks as follows of this condition: "In reference to wry-neck there is a fact worthy of observation and further investigation; that in young persons subject to this affection the head and face on the contracted side do not develop as on the other, and in consequence there is a want of symmetry in the countenance when narrowly examined from the front. One eye is slightly lower than the other, and the whole of that side of the face and head is smaller than on the other. In a lad lately in the hospital with heart disease, a wry-neck existed from infancy, and this remarkable want of symmetry was very evident. In a young lady patient, also, who is otherwise well grown, this disproportion of the two sides of the head and face is clearly shown. It may be asked whether this is due to some failure of nervous power having its foundation in the same cause which produced the wry-neck, or whether the contracted muscle itself exerts an influence on growth, and, if so, whether the division of the sternomastoid would allow development again to proceed." The references to it in the literature are scanty, and it has even escaped the notice of that most observant of observers, Gowers.

* Read before the American Pediatric Society, Washington, D. C., September 24, 1891.

† "Diseases of the Nervous System," 1st edition, 1878, p. 454.

Bradford* mentions a child of six months, which was born with a lack of symmetry of the cranium, affecting the frontal bone on the right side. The face and head in every other respect were symmetrical. The head was habitually carried in the position of wry-neck with the chin turned to the right, exactly in the position to suggest the explanation by the mother that the left side was heavier than the right, and the head was held crooked.

Krummacher† reports two cases; in one, a child aged ten with right-sided torticollis, the face showed marked asymmetry. In the second the child, aged twelve, at about the age of two years fell and had paralysis of the extremities on the right side. The sternal portion of the right sterno-mastoid was contracted. The facial asymmetry was striking; very little difference in the extremities; no special asymmetry in the two sides of the skull.

Stanley Boyd‡ reports a case of a girl, aged nine years, in whom the torticollis was noticed shortly after birth. The right half of the face was distinctly smaller than the left. Careful measurements and the accompanying photograph showed the great difference which existed between the two sides, not only of the face but of the skull.

By far the most important communication on the subject is by C. H. Golding-Bird, § who reports six cases of congenital wry-neck with facial hemi-atrophy.

The following case has come under my observation :

Margaret G., aged fifteen, a well-grown, healthy looking girl, with good family history. She was well as a child. Nothing wrong was noticed until her tenth year. On the 18th of December, 1886, she fell and cut her chin, and the mother states that for two weeks she held her head turned to the right, and for a year or more after this she had wry-neck. The following year Dr. Tiffany operated, and there was temporary benefit. Subsequently by gymnastic exercises she improved very much. The mother is positive that the child had not wry-neck when young. The asymmetry of the face has been noted for several years, and is thought by the mother to be progressive. A photograph taken at four and a half, full

* *Boston Medical and Surgical Journal*, vol. cvi., 1882.

† "Berlin Thesis," 1889. *Zur Aetiologie d. Schadel-Asymmetrie beim Angeb. Scheifhalse.*

‡ *Illustrated Medical News*, London, 1889.

§ *Guy's Hospital Reports*, vol. xlvii, 1890.

face, shows complete equality of the sides; no lowering of the eye or eyebrows. A second picture at eight and a half shows both sides fairly equal and the eyes on the same level.

Neck; circumference, 30.5 cm. The left side is distinctly fuller than the right; scarcely perceptible scar above the sternal attachment of the sterno-mastoid. The outline of the sterno-mastoid on the right side is plainer than on the left when the head is straight and the depression between the two portions is better marked. The muscle on the left side is distinctly larger and fuller, and is of greater breadth; particularly well seen when the head is rotated to the right. The clavicular part is full and strong, and there is no trace of the division between the sternal and clavicular portions. When the head is rotated to the left the sternal portion stands out prominently and well. No difference apparent in the trapezius of either side.

Movements of the head seem free, but she rotates to the left rather more than to the right. The face shows marked asymmetry. The measurements are as follows: On the left side, from below the lobe of the ear to the angle of the mouth, is exactly 10 cm.; corresponding measurement on the other side is exactly 9.2 cm. From the outer canthus to the tip of the antitragus: right, 8.4; left, 8.8. A horizontal line through the middle of the left pupil passes at the margin of the upper lid of the other eye. A line passing at the margin of the lower lid of the left eye passes through the middle of the pupil of the right. The right eyebrow is on a distinctly lower level than the left. The nose is straight.

The whole cheek, including the malar bone and zygoma of the right side, is distinctly smaller than the left; no difference in the ears. Pupils are equal, react alike. Laughs on both sides of her face equally. Both frontals move well. A little flattening perhaps in the right temple.

The measurement of the head, 36.5 cm. Nothing of note in the hands and arms. The teeth are well formed, equal. No molars in the lower jaw on the right side. The palate is well formed; the sides of the tongue equal.

The question arises whether this was really a case of congenital wry-neck. The mother is quite positive in her statement that the child held her head perfectly straight until after the accident at her twelfth year. Golding-Bird mentions that in all but one of his cases he was

informed that the deformity had only been recently noticed, but an appeal to the photograph album in several instances showed that the deformity had existed long before the parents had noticed it. In our patient the photograph taken at four and a half and the photograph at eight and a half years show no asymmetry, certainly not in the earlier one. In the picture at eight and a half some have said the sides looked equal, others that the left side looked the smaller.

Facial asymmetry quite evident to the observer may be overlooked by the parents and friends, who have been familiar with the appearance of the child from infancy. Under these circumstances it is only necessary to show them the reflection of the face in the looking-glass, which brings out the asymmetry between the sides in a striking manner.

All of the cases on record have been on the right side.

Slight grades of facial asymmetry are exceedingly common, probably quite as common as asymmetry of the skull, but it is only when extreme and progressive that the term hemi-atrophy can be applied to it. The condition evidently is quite different from Romberg's facial hemi-atrophy. In none of the cases reported has the unilateral wasting been progressive, nor has it proceeded to the same grade as seen in this affection. The skin is not observably changed, and there does not appear to be the same loss of subcutaneous tissue, nor is there wasting of the sebaceous follicles, nor any change in the nutrition of the hairs. The differences in the bones and of the muscles may, however, be very striking in the form at present under consideration.

In the cases with torticollis the condition is rather, as Wilks suggests, as if the face on the affected side had not developed proportionately, so that it is arrest of growth rather than an actual atrophy.

A perfectly satisfactory explanation of this asymmetry and of its relation to torticollis has not yet been offered. Eulenberg (quoted by Golding-Bird) has suggested that the position of the neck interfered with the vessels and nerves passing to the head and so arrests the nutrition, but this does not seem very likely. Golding-Bird advances the view that the facial hemi-atrophy is not a consequence of the torticollis, but an integral part of the affection, both having a common central origin, which he believes is a primary polio-encephalitis. He states that "bearing in mind the exact similarity between congeni-

tal torticollis and a case of infantile paralysis with talipes equinus, the conclusion is, to my mind, all but inevitable that "caput obstipum," with its contracted sterno-mastoid, wasting of the facial muscles and soft parts, and even of the bones, forms an exact copy of talipes equinus with contracted calf-muscles, ill-nourished soft parts, and in many instances shortened bones, and must have a similar origin." It certainly appears more reasonable to think that the hemi-atrophy and the shortened muscles are both the expression of some central lesion, but it is difficult to understand, from our present knowledge of cortical localization, exactly where the mischief could be.

The facial condition is apparently not progressive. As already mentioned, it is a question whether it is a condition of atrophy of the face or whether it is not really an arrest or imperfection in the development. If the former it would, as in Romberg's type of hemi-atrophy, produce in time more serious alterations than have been present in any of the cases yet recorded. The history and the photographs in my patient suggest that the wry-neck and asymmetry may have developed after the injury. The facial condition is such as might be produced by arrest of development, but how brought about and in what way related to the torticollis is not very clear.

GAVAGE IN THE TREATMENT OF PERSISTENT VOMITING IN INFANTS.*

BY CHARLES G. KERLEY, M.D.,

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A NUMBER of cases of persistent vomiting occur every year in the New York Infant Asylum, largely in delicate and athreptic infants, either with or without intestinal complications—cases in which diet, ordinary therapeutics, stomach-washing and other measures prove fruitless. In the treatment of some of these obstinate cases of vomiting by stomach-washing, especially in those with high temperature and urgent thirst, it has long been our custom to in-

* Read by invitation before the American Pediatric Society, Washington, D. C., Sept. 24, 1891.

roduce an ounce or two of boiled water into the stomach, after the completion of the washing, and allow it to remain. It was observed that the water so left behind was rarely rejected, when whiskey and brandy, largely diluted, and light foods of various kinds were vomited when given by spoon or bottle within an hour or two after the washing.

It occurred to the writer that, if water given in this manner could be retained, partially digested food and diluted stimulants might be kept down, if given in the same way; therefore it was determined to see what could be done in the way of systematic forced feeding by means of the stomach tube in the treatment of these cases.

After ten or twelve had been treated in this manner, Dr. Holt informed me that Tarnier and other French writers had employed similar measures in the management of premature and weakly infants. As the method and object is practically the same, the term *Gavage* or forced feeding, which was applied by Tarnier to this procedure, is adopted, although it was never employed by him in the treatment of vomiting.

A search through the literature of the subject shows that *Gavage* has been used successfully, not only, as by Tarnier in premature and delicate infants, but after operations for hare-lip, tracheotomy, intubation, etc., but not, so far as I have been able to learn, by any writer to combat the symptom vomiting.

As a rule, the children upon whom our observations were made were delicate; a few had marked athrepsia; in no case was forced feeding employed until other measures had been found unavailing. In many instances the forced feeding was alternated with the bottle or spoon, in order to discover whether the success was due to the method, or whether the irritability had been controlled.

The apparatus employed was that ordinarily used for stomach-washing, with this exception: instead of the soft rubber catheter, Pain's No. 1 adult nasal feeding tube was used. The advantage of the feeding tube over the catheter lies in the fact that the former contains two eyes while the latter has but one. This shortens the duration

of the operation about one-half—a decided advantage in some cases. The feeding tube is attached by a small glass tube to a common rubber tube two and one-half feet long, with a funnel holding three or four ounces at the end.

During the operation, the child should be held in a half reclining posture, supported by the nurse's right arm, and not held erect as for stomach-washing; the tube should be introduced rapidly, the quantity to be given poured into the funnel, which is then raised as high as possible, and the tube compressed and instantly withdrawn as soon as the funnel has emptied itself into the stomach.

Usually diluted stimulants and predigested foods were given, in quantities ranging from $\frac{1}{2}$ to $2\frac{1}{2}$ ounces, every two or three hours. Twenty cases were treated in this manner; the forced feeding was employed in all one hundred and thirty-two times. A portion of the amount given was vomited eleven times, the entire amount twelve times; but after one hundred and nine feedings there was no vomiting.

The following cases are taken as illustrative examples: I am indebted to Drs. E. C. Wendt and L. Emmett Holt, Visiting Physicians, for use of cases, and to Dr. H. E. Tuley, Senior Assistant Resident Physician, for his valuable assistance in carrying on the work.

CASE I.—Persistent vomiting, uncontrolled by diet or mechanical means, immediately and permanently relieved by forced feeding. Second attack two weeks later similar management; similar result.

Fairly well-nourished male infant (colored), aged five months, nursed by mother until ten weeks old, when the nursing was stopped on account of persistent vomiting. The mother's milk was examined and found deficient in both fat and albuminoids; microscopic examination negative. Means for improving the milk attempted but unsuccessful. The nursing stopped entirely and put on the partially peptonized milk, which was retained fairly well; received two ounces every two hours, and vomited but once in two or three days.

The patient gained in weight and seemed fairly well until the middle of July, when the vomiting increased, averag-

ing two attacks in twenty-four hours, when the whole amount given was rejected. The stomach was washed frequently, and the amount given at a feeding gradually reduced to three or four drachms. The diet was also changed to malted milk—from one-half to one ounce given at a feeding. The careful diet, stomach-washing with doses of one grain of cerium oxalate in one-half drachm of chalk mixture, given hourly, were ineffectual. Was treated in this manner for five days, and on the sixth day of illness vomited everything. Greatly prostrated; pulse feeble; some cyanosis; temperature and stools normal.

As the malted milk had been vomited several times during the morning, when given by spoon or bottle, this was selected for the forced feeding; stomach not washed; and at three o'clock P.M., one and one-half ounces given by tube; two ounces given in this manner at 4.20 and one ounce at 7.30; all retained; no inclination to vomit. At 9.40 vomited the whole amount given, one and one-half ounces during the withdrawal of the tube; but retained the same quantity given in the same manner three minutes later. The temperature and stools normal. During the night fed one ounce by spoon every two hours, and vomited three times, everything taken, unchanged.

2d Day.—Temperature and stools normal. At 8 and 10 A.M. fed one ounce of malted milk by spoon, and vomited all as soon as taken. Stomach washed at 11 A.M. Some mucus and few curds removed. In forty minutes was given one ounce of malted milk by spoon; vomited all in ten minutes. The spoon-feeding and vomiting repeated at 1.20. One hour later was given one and one-half ounces by tube; no vomiting followed, and at 4.20, before feeding, the contents of the stomach were syphoned out. Some mucus and few curds removed. Was then given two ounces of malted milk by tube, which was retained. During the night took one and one-half ounce by spoon, every two hours, without vomiting.

During the next week from sixteen to twenty ounces of the malted milk was taken by bottle in twenty-four hours; no rise in temperature during the time; no vomiting; bright and playful.

At the commencement of the second week, however, a second vomiting attack came on, and for sixteen hours everything taken was vomited; malted milk, wine-whey, whiskey and water were tried. The stomach was washed and found empty, and in one hour one ounce of malted milk given by spoon; vomited at once; repeated the feeding in

two hours, and all vomited as soon as taken. One hour later, no medicine having been given, one and one-half ounce of the malted milk given by tube and retained; two ounces given in this manner two hours later and retained. During the remainder of night took and kept down one and one-half ounce by spoon every two hours. No more trouble followed, and at present report is gaining from five to twelve ounces weekly on the malted milk.

CASE II.—Delicate, bottle-fed male infant, aged six months; was taken sick the second week in July.

1st Day.—Temperature, 99° to 101° . Six large thin stools. Vomited twice the malted milk upon which he had been gaining in weight slowly. The diet was changed to barley-water and wine-whey; given one drachm of castor oil, ten grains of bismuth hourly, and one-fourth grain of Dover's powder every two hours.

2d Day.—Temperature, 100° to 102° . Fifteen green mucous stools, streaked with blood. Colon irrigated with four pints of the tannic acid solution at 110° ; other treatment the same; the food taken well.

3d Day.—Temperature, 101° to 102° . Ten stools, same character; no essential change; treatment continued.

4th Day.—Temperature, 100° to 101° . Six stools, same character. Bismuth stopped, and instead given one-half grain of resorcine in one drachm of chalk mixture every two hours. The resorcine stopped after the fifth dose, on account of vomiting, and bismuth in ten-grain doses hourly resumed. No more vomiting, but the nourishment was taken very poorly. If more than two teaspoonfuls of the wine-whey or kumyss was given, retching and vomiting followed.

6th Day.—Temperature, 101° . Eleven stools, same character. Almost impossible to give any form of nourishment, but two drachms taken at a time during the early morning.

Stomach not washed, and at 10.30 A. M., ten drachms of the Mellin's food, without milk, was forced and retained. In two hours one and one-half ounce of the completely peptonized milk given in the same manner—repeated in two hours. No vomiting. At the next feeding, 4.30, one-half ounce of the milk was fed by the spoon; no more could be taken. During the remainder of the afternoon and night, one-half ounce was taken every two hours.

7th Day.—Temperature, 101° to 103.8° . Six stools, same character. At ten o'clock A. M. one ounce of the completely peptonized milk was forced and retained. Two hours before, but one-half ounce could be given by spoon.

The forced feeding repeated at 12 noon; one and one-half ounces introduced and kept down. Later, one-half ounce of food was given by spoon or bottle every two hours—one thing was taken as well as another—but if the fifth drachm was given the whole feeding was vomited at once.

Treatment continued; baths *p. r. n.*

8th Day.—Temperature, 100° to 104° . Five stools, same character. Fed one ounce of the completely peptonized milk by the tube every two hours. Vomited one-half of one feeding. Same treatment.

9th Day.—Temperature, 102° to 103.3° . Stools unchanged. Food not taken so well; not more than one-half ounce could be given; if more attempted, it was regurgitated. Peptonized milk, Mellin's food, plain, malted milk, kumyss and wine-whey were given a trial. Stomach was washed with water at 110° F. After this, one ounce of the whey and kumyss was taken alternately every two hours; vomited the six o'clock feeding of kumyss at 6.30; and in one and one-half hour one drachm of whiskey in one and one-half ounce of completely peptonized milk was forced and retained. The stomach washed and found empty in two hours. The water introduced was withdrawn perfectly clear. The tube feeding repeated in a few minutes and retained. During the night, one ounce was taken by spoon every two hours; one feeding vomited.

10th Day.—Temperature, 101° to 104° . Nine stools; mucus streaked with blood. The spoon feeding of one ounce every two hours continued. At ten o'clock A.M., one ounce of kumyss was given in this manner. Vomited nearly all in one-half hour. Stomach washed; many curds removed. In thirty minutes, one and one-half ounce of kumyss was forced and retained. This was repeated at 1.10 and immediately vomited; the same quantity reintroduced in five minutes, and repeated at 8 and 10 P.M., and *all* retained. During the remainder of night, took one ounce of kumyss and wine-whey alternately every two hours, without vomiting.

11th Day.—Moribund; died in the evening.

Post-mortem examination showed ulcerative colitis and slight congestion of stomach.

CASE III.—*Persistent vomiting, uncontrolled by any means employed.*

A well-nourished female infant, aged four and one-half months, not nursed, was admitted into the Infant Asylum early in July. Vomiting occurred once or twice daily dur-

ing the first nine days, immediately after nursing; the milk vomited unchanged; a greater part of the nursing rejected. The wet-nurse was nursing her own infant, of about the same age, which was healthy. The milk was examined and found normal; microscopic examination negative. The stools remained normal, and the temperature ranged between 98° and 99.5° . The patient was bright and playful, but as there was considerable loss in weight, the nursing was supplemented by two or three feedings daily, of the partially peptonized milk—two ounces given at a time, and allowed to nurse but three minutes. As usual, there was a two-hour interval between feedings. As the breast-milk was vomited when nursed in this manner, and the partially peptonized milk retained, this was given entirely and the nursing discontinued; but the amount given at a feeding had to be reduced to six drachms; if more was taken regurgitation followed. Having noticed many times that the capacity for food was greatly increased by frequent stomach-washing, this measure was employed, but was of no avail; no more than six drachms could be taken and retained. Other foods were tried but with no better success. Stools and temperature normal—on the 13th day of illness, the first rise in temperature occurred—ranged between 101° to 102.6° . The stools, heretofore normal, were now green and contained considerable mucus; no vomiting.

14th Day.—Temperature, 101° to 105° . Three green mucous stools; vomited at 10.30 the whole amount given. Baths for temperature *p. r. n.*

Stomach washed at 11; found empty. One-half hour later, fed two drachms of malted milk by spoon, which was vomited at once. After an interval of forty minutes, two drachms of kumyss was given and vomited immediately; later, whiskey largely diluted was rejected every time given. Attempted to feed the malted milk by tube, in the afternoon. Three attempts were made and each time the milk was vomited before the tube could be withdrawn. The temperature at this time was 105° ; died two hours later.

Post-mortem examination showed entero-colitis. No stomach lesion to naked eye.

CASE IV.—A delicate, poorly nourished, male infant, aged three months, nursed by mother; began vomiting in April.

1st Day.—Temperature, 99.4° ; one normal stool; vomited four times the mother's milk. Upon inquiry we

learned that the patient had been vomiting occasionally during the past week, and that the mother was menstruating; microscopic examination of milk negative. The stomach was washed; the mother ordered to discontinue nursing and feed the baby malted milk by the spoon; during the night one ounce was given every two hours; no vomiting.

2d Day.—Temperature, 99°; one normal stool; one ounce of malted milk given at a feeding, which was vomited; the quantity reduced one-half and vomited—vomiting in all six times, immediately after taking the food, unchanged; no mucus. The patient somewhat prostrated but slept well. During the night, was given six drops of whiskey in two drachms of water, every two hours, and vomited all.

3d Day.—Temperature, 99°. Stools normal; stomach washed at 8 A.M., and partially peptonized milk ordered in teaspoonful doses every half hour. The mother, thinking the child was being starved, nursed it against orders; vomited four times after the peptonized milk as well as after the nursing.

4th Day.—Temperature, 100° to 106.6°.—Five small yellow stools. Stomach washed at 8 A.M. Small quantity of mucus removed; in one-half hour was fed two drachms of peptonized milk by spoon; vomited at once. Later, was given wine-whey, sarco-peptones, and diluted iced-brandy in one drachm doses; all rejected; even vomited one teaspoonful of ice-water. Marked prostration; pulse feeble.

5th Day.—Temperature about 102°; nine stools, composed almost entirely of mucus. Bismuth subnitrate (Squibb's), ten grains every hour ordered, colon irrigated with four pints of tannic-acid solution; temperature, 100°, one ounce of completely peptonized milk was forced every two hours and retained. During night was given one-half ounce of completely peptonized milk by bottle every two hours and vomited nearly all of it; prostration extreme; quite cyanosed.

6th Day.—Temperature ranging 101.8 to 104.5°. Fourteen stools composed almost entirely of mucus; given one ounce of completely peptonized milk by tube every two hours; each feeding contained one and one-half drachms of whiskey; no vomiting. Other treatment unchanged. Baths *p. r. n.*

7th Day.—Temperature, 100° to 100.5°; prostration extreme; pulse almost imperceptible. Tube not used on account of extreme prostration. Feeding by spoon in a

measure successful. About three ounces of peptonized milk with whiskey in small quantities was taken during the next sixteen hours, when death occurred from exhaustion.

The post-mortem examination showed entero-colitis, but no evidence of disease in the stomach.

CASE V.—A case in which the breast milk and everything given by spoon was vomited repeatedly; no vomiting after forced feeding.

Delicate female infant nursed by mother; taken sick the first week in July.

1st Day.—Temperature, 100° to 104°. Four green mucous stools; nursed every two hours, the last time at 8 P.M. Vomited nearly the whole nursing; one hour later, at ten o'clock; two teaspoonfuls of barley-water given by spoon was not retained two minutes. In one-half hour, fifteen drops of whiskey was given in two drachms of water, and vomited immediately. At 11.30, nothing having been given in the interval, one and one-half ounce of the completely peptonized milk was forced and retained. During the night rested well; nursed twice by mother without vomiting.

2d Day.—Temperature, 101° to 102°. Two normal stools; nursed every two hours during the morning, three minutes at a time, and vomited three times immediately after nursing; the milk unchanged, contained neither mucus nor curds; the mother's milk examined and found good; microscopic examination negative. During the afternoon one ounce of the completely peptonized milk was given by tube every two hours and retained. During the night was fed once by spoon every two hours and all vomited.

3d Day.—Temperature, 100°; one normal stool; fed by spoon one ounce of the same every two hours; all retained.

4th Day.—Temperature, 102° to 103°; two green mucous stools; during morning fed as yesterday by spoon every two hours; vomited after the eight and ten o'clock feedings. At twelve and two, one ounce of the completely peptonized milk was forced and retained. At four and six o'clock fed the same by spoon; vomited at once after both feedings. At 8 and 10.30, a similar amount was forced and retained. Taken with convulsions at midnight and died twelve hours later; temperature during this time, 104° to 106°.

Post-mortem examination showed entero-colitis and broncho-pneumonia, but no stomach lesion to naked eye.

CASE VI.—*Two attacks of vomiting controlled by forced feeding.*

Healthy female infant, aged eleven months; nursed by mother entirely until nine months old. Since then partly nursed and partly fed on the partially peptonized milk.

Taken sick the second week in July.

1st Day.—Temperature, 102.6° ; six green mucous stools; quite restless. The mother was suffering from malaria and the nursing was stopped; microscopic examination of milk negative. Given one drachm of castor oil; ten grains of bismuth subnitrate hourly, and one-fourth of a grain of Dover's powder every two hours.

2d Day.—Temperature, 99° to 101° ; ten stools, composed almost entirely of mucus; colon irrigated with two quarts of the tannic acid solution; other treatment unchanged; Mellin's food, plain, the only article of diet which could be taken, was vomited twice in the evening; the vomited matter was composed of mucus and water. The stomach was washed at 9.30, and in one-half hour one-half ounce of the Mellin's food, plain, was given by spoon; this was rejected at once. In one hour one ounce of the Mellin's food, plain, was given by tube, the forced feeding repeated at 11.30, and all retained. During the night not more than one-half ounce could be taken; if more, retching and regurgitation followed.

3d Day.—Temperature, 101° to 103° . The amount given at a feeding, gradually increased until one ounce could be taken by the spoon. One ounce of the Mellin's food, plain, was given alternately with one ounce of wine-whey every two hours, without vomiting. Same treatment continued, with baths for temperature *p. r. n.*

The case developed into one of severe entero-colitis, with temperature ranging between 101° – 103.5° for the next ten days. The stools averaged about seven daily, and were composed largely of green mucus, streaked with blood. The diet consisted of wine-whey, sarco-peptones, breast-milk, and peptonized milk. Both salol and resorcine were given a trial; the former was discontinued because the stools became worse while taking it, and the latter on account of the vomiting, which it doubtless started up anew on the 14th day, when both peptonized milk and wine-whey were vomited. The stomach was washed now at 8.30, and in forty minutes the infant was fed one ounce of the completely

peptonized milk by spoon ; vomited the entire amount in twenty minutes. The same was forced at once, and all vomited during the withdrawal of the tube. The tube feeding repeated in three minutes, and all retained. At 11.30 one ounce was given in the same manner, and all was vomited before the tube could be withdrawn. In a few minutes one and one-half ounce was forced and retained.

At 2 A.M. and during remainder of night at two-hour intervals, five drachms was taken from bottle and retained—if more given retching and regurgitation followed.

15th Day.—Temperature, 101° to 103°. Five stools, same character. The quantity taken at a feeding gradually increased from five drachms to one ounce, which was taken every two hours. During the remainder of illness, ten days, a fair amount of nourishment was taken without vomiting. Death from exhaustion due to diarrhœa.

The autopsy showed ulcerative colitis, but no stomach lesion to naked eye.

CASE VII.—A very delicate female infant, aged two months, wet-nursed, taken sick with vomiting in July.

1st Day.—Temperature, 99°; vomited three times; curds and mucus. Stomach washed in the evening, and given one drachm of castor oil. Nursed twice during the night ; no vomiting.

2nd Day.—Temperature, 99°; five thin green stools ; nursed three minutes every two hours, and vomited twice soon after nursing. Milk examined, found good. Microscopic examination negative.

The stomach was washed at 8 o'clock P.M., and one hour later two drachms of wine-whey was given by spoon—vomited immediately. At ten o'clock one ounce of wine-whey was forced, of which one-half was vomited. After an interval of one hour and a half one drachm of whiskey to one ounce of Mellin's food, plain, was forced and retained. Patient very irritable and quite prostrated. During the night one-half ounce of Mellin's food, plain, was fed by spoon every two hours ; this was all that could be taken—if more was given, vomiting and retching followed.

3d Day.—Temperature, 99°; stools normal.

Intense prostration and considerable cyanosis.

Fed one-half ounce of wine-whey, or Mellin's food, plain, by spoon, alternately, every two hours during the morning, and vomited twice the food as taken. The

stomach was washed early in the afternoon, and in one hour one ounce of the malted milk was given by tube ; this was repeated in two hours and retained. At 6 o'clock P.M., after an interval of two hours, one ounce of malted milk was fed by spoon and vomited in a few minutes. At eight o'clock one ounce of the completely peptonized milk, fed by spoon, and vomited all in ten minutes. At 9.30 and 11.30 one ounce of the peptonized milk was forced and retained. During the remainder of night one ounce of the peptonized milk was taken by spoon every two hours and retained.

4th Day.—Temperature, 99°; general condition greatly improved ; stools normal. One ounce of the completely peptonized milk, fed by spoon, every two hours ; no vomiting. The following day was allowed to nurse. No vomiting followed.

The child made an excellent recovery. During the attack, the wet-nurse nursed her own infant, of the same age, which remained well.

CASE VIII.—Delicate, bottle-fed female infant, aged eight months, having recently recovered from an attack of broncho-pneumonia, was taken acutely sick early in July. For about two weeks previous to this time, the food had been taken very poorly. Partially peptonized milk, Mellin's food, wine-whey and malted milk were given a trial ; of these, malted milk was taken the best, but not more than one-half ounce could be taken at a feeding ; if more given, it was regurgitated. Of course, under this scant diet with one-half drachm of whiskey every two hours, there was rapid failure. The stomach was washed, but it apparently made no difference in the quantity of food taken. Both temperature and stools were normal during this time.

1st Day of Acute Attack.—Temperature normal ; seven large, watery stools ; vomited twice the malted milk unchanged, which had been given as usual, one-half ounce every two hours. As the entire amount given was vomited as taken, the stomach was *not* washed, and early in the afternoon one ounce of the malted milk was forced ; in two hours one and one-half ounce was given in the same manner, both feedings retained—retaining three times as much when forced as when given in the usual way. One ounce was then ordered to be given by bottle every two hours ; this was done ; no vomiting.

2nd Day.—Temperature normal ; seven large, watery stools ; put on bismuth subnitrate, ten grains every

hour, with one-fourth of a grain of Dover's powder every two hours; fed as yesterday, and vomited the whole ounce immediately after the ten o'clock feeding. In one hour two and one-half ounces was forced, and, greatly to our surprise, was not vomited. During the afternoon two ounces were given by spoon every two hours and retained. During the remaining seven days of illness, had from seven to nine stools daily. From fourteen to twenty ounces of barley-water, wine-whey and malted milk were taken by hand in twenty-four hours.

During the last three days of illness the temperature ranged very high, and the infant died in convulsions. The post-mortem examination showed slight inflammatory changes in the intestines and broncho-pneumonia. No evidence of disease in stomach to naked eye.

The ages of the cases treated were as follows:

Eleven were under six months; only two over one year.

As regards previous condition and nourishment, six were nursed entirely by the mother, previous to illness; four of these were well-nourished infants, in good health; one was delicate, and one athreptic.

Of these nursing infants the vomiting was permanently controlled in five; in one it was of no benefit; two recovered; two died with ulcerative colitis, one with enterocolitis and broncho-pneumonia, and one from exhaustion.

Two children, both aged two months, were wet-nursed entirely; one was delicate, the other one athreptic. The vomiting was permanently controlled in both—the athreptic died, however, from exhaustion, but the other made an excellent recovery.

Three were partly nursed by mother, and partly fed. Ages ranged from eleven to sixteen months; all healthy. Vomiting permanently controlled in all. One made an excellent recovery, two died with ulcerative colitis.

Two were partly wet-nursed and partly bottle-fed; aged four and one-half and eight months; both healthy. Vomiting greatly improved in one; in the other the treatment was of no service whatever. One died with ulcerative colitis, the other with enterocolitis.

The remaining seven were entirely bottle-fed; four were in fair health, two athreptic, one delicate. Six were

under six months, and one over eighteen months old. The vomiting was permanently controlled in five, improved in one, and no improvement in one. Two recovered; one died with broncho-pneumonia, two with croupous colitis, one from exhaustion, and one with ulcerative colitis.

It will be seen from the foregoing that the vomiting was effectually controlled in fifteen of the twenty cases, and that six recovered.

I am confident that the lives of two of these were saved by the timely use of the tube. In three, with very high temperature, which proved to be due to either croupous or ulcerative colitis, it was of no benefit. In three, vomiting ceased to be a symptom, and death followed not earlier than ten days from colitis or broncho-pneumonia, or both.

In two the vomiting was only partially controlled, although three times as much could be taken by tube and retained as could be given in other ways.

In the remaining six fatal cases the vomiting was effectually controlled, thus prolonging life and giving a chance for recovery, which the patient otherwise would not have had.

A feature of great interest, which was brought out by the experiments, lies in the fact that, when but three or four drachms of diluted stimulants or light food could be taken by spoon and retained, three or four times this amount could be forced, not vomited, and the stomach found empty in two hours. This was most noticeable when the spoon or bottle feeding was alternated with the use of the tube. In two cases, in which everything was refused, food given in this manner was retained and digested.

It will be noticed also that the cases in which Gavage was most successful were those of low temperature, in which it did not rise above 103°.

To one who has not washed the infant's stomach many times this method of treatment may seem absurd, as it might be supposed that the tube would cause sufficient irritation or disturbance to produce violent retching and vomiting; but those who have practiced washing of the

stomach on a large scale, and done it properly, will recollect how difficult it is in many cases to make the child vomit, when, on account of thick mucus and large curds, this is desirable. In order to produce vomiting the stomach has to be crowded—filled to overflowing. In the N. Y. Infant Asylum, during the past three years, stomach-washing has been performed not less than fifteen hundred times, and in comparatively few cases does vomiting spontaneously occur during the operation.

Gavage, if properly performed, disturbs the patient but little, and the success in some cases, especially those with very high temperature, certainly depends upon the dexterity with which it is performed. We have frequently introduced one ounce of food into the stomach in this manner—the duration of the whole operation being but fifteen seconds by the watch. In order to do it as rapidly as this, there must be no resistance on the part of the patient. Vomiting of small amounts during the withdrawal of the tube was troublesome in a few. This we found could be obviated to a great extent by *compressing the tube* during the withdrawal as soon as the funnel was emptied. This prevents the small quantity, which always remains in the tube, from escaping into the pharynx, or possibly into the larynx. In addition to this precaution, the tube must be withdrawn rapidly.

The writer thoroughly realizes that twenty cases are not enough to establish a point beyond all possibility of error, but the results obtained show that Gavage is likely to be serviceable:

1st.—In cases of persistent vomiting in infants, not of cerebral origin, after other methods have failed to relieve the patient.

2d.—Under any circumstances when infants can not, or will not, take sufficient nourishment.

3d.—Its application, like stomach washing, must be limited to infancy, since in children over two years the resistance of patients make it almost impossible of application.

DISCUSSION.

DR. HOLT.—It has been my fortune to see a large proportion of these cases that have been reported. I began by being skeptical in regard to the effect of the measure proposed, as many of the gentlemen here are no doubt. I am, however, convinced of its utility. Exactly why it is that food can be fed through a tube and retained when nursing by the bottle or by a spoon causes vomiting, I do not know. It may depend upon the reflex irritation from the pharynx, in cases where the gastric disturbance is not enough to cause vomiting. Certainly it is a fact that with it children can be made to take and digest one and one-half to two ounces of food, when by bottle or spoon one or two drachms are vomited repeatedly. This is worth further investigation. It deserves trial against a symptom than which no other in pediatrics is more troublesome.

DR. O'DWYER.—My experience with feeding by means of the stomach tube, which was sometimes necessary after intubation, before the adoption of the Casselberry method, was very unsatisfactory, as most if not all of the food was usually rejected. Almost all the cases were over the age, which Dr. Kerley says that this method of forced feeding is practicable.

DR. PUTNAM.—Does Dr. O'Dwyer employ the method as described of drawing out the tube quickly?

DR. O'DWYER.—No, I did not. I used the method in older children, and perhaps did not remove the tube quickly enough.

DR. SEIBERT.—Dr. Kerley gave the main points in his paper and asked what should cause the vomiting? It was caused either by the food or by the pathological condition of the stomach and intestines. The cause must be somewhere above the stomach. When we have catarrh of the stomach in an infant, we usually have catarrhal effect upon the oral cavity and pharynx. There is always a certain amount of pharyngeal catarrh, due to the presence of decomposing material and fur upon the tongue. When the tube is put into the stomach, none of this material reaches the stomach. The stomach is practically pure and clean. The sterile food is put in, and then certainly the conditions are much more favorable. In regard to Dr. Koplik's remarks, I do not agree with him. I had a conversation with Prof. Epstein last summer, and my point is, that I am always in the habit, after cleaning out the stomach, of leaving the stomach half full of clear, cold

water, and it is well retained and quickly absorbed. I thank Dr. Kerley for bringing out this therapeutical point so well.

DR. KOPLIK.—I have listened to the paper with great interest, and have followed the histories of the cases. If a child vomits, and this uncontrollably, after the stomach is washed out, we should stop food for a long time after the washing. After washing, you must practically starve the baby for from four to six hours. If the patient is thirsty, you may give a few teaspoonfuls of albumen water. Dr. Epstein, who first used stomach washing, laid great stress on this point. I did not notice in the histories that the little ones had a chance to rest. In this way we might possibly compare the stomach washing and forced feeding to better advantage.

DR. KERLEY.—In answer to Dr. Koplik, in the majority of the babies, if we had waited six or eight hours, we should not have had an opportunity to use the tube or anything else. In most cases one or two hours was allowed to intervene, and then light food, such as wine-whey, was given, sometimes water and whiskey in small quantities.

The mode of action of Gavage in controlling vomiting has been spoken of. I wish in this connection to read a letter from W. Gilman Thompson, M.D., Professor of Physiology in the University Medical College of New York.

“In answer to your inquiry in regard to the possible cause of the interesting phenomena of forced infant feeding discovered by you, I offer the following suggestions :

I. The mechanisms of deglutition and of vomiting are among the most complex nerve reflexes of the body. Deglutition alone employs the action of branches of the facial, trigeminus, stylo-glossus, glosso-pharyngeal, vagus and sympathetic, and in sucking the infant makes special use of the respiratory mechanism, in order to produce a vacuum.

II. The vagus and sympathetic nerves, from their frequent branches to the œsophagus, stomach and heart, can be readily overstimulated through certain branches, with the effect of excitation of others more remote.

III. It is a well-known fact, and one which I have often confirmed on different individuals, that slowly sipping a tumbler of water causes an acceleration of the rate of heart-beat, amounting to fifteen or twenty pulsations per minute. This is due to the effect upon the vagus branches

of frequent excitation in swallowing, for rapidly drinking the entire tumblerful has no such accelerant effect on the heart. The experiment is independent of the temperature of the fluid.

IV. Infants vomit much more readily than adults, with less nausea and respiratory disturbance.

V. It therefore seems possible that under some conditions, especially where gastric indigestion already exists, the vagus and sympathetic stimulation produced by sucking, or taking small swallows of milk from a teaspoon, may become sufficient for it to radiate to the vomiting centre in the medulla and excite emesis.

VI. The nerves of taste and smell readily excite vomiting at times. When milk is swallowed, a coating of it remains upon the tongue and pharynx, where it forms a favorable nidus for germ culture and fermentation, unless the mouth be thoroughly cleansed. Where stomatitis with gastric dyspepsia exists, this condition would be aggravated, and the nerves of taste or even smell might excite vomiting through the medullary centre. When the milk is put into the stomach through a clean tube, this mouth fermentation cannot occur, and emesis is not excited.

VII. We know how easily vomiting is excited in sensitive subjects by any irritation of the pharynx of a mechanical kind. An infant with gastric dyspepsia and abnormal fermentation begins to suckle. The process lasts for some minutes, and the first mouthfuls swallowed have already begun to ferment in the stomach when the last mouthful, possibly merely by mechanical excitation of the pharynx, causes prompt emesis. In tube feeding the milk is all put down at once, quickly, and the pharynx is thereafter left at rest, so that no emesis occurs. It seems to me that one or all of these three factors, vagus irritation, bad taste, or mechanical excitation, occurring singly or together, would satisfactorily account for the very instructive and practical observations recorded by you.

Very truly yours,

W. GILMAN THOMPSON, M.D.

IN many of the digestive disorders of the infant the best preventive, and often curative aid, is the breast milk of mother or wet nurse.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

FURTHER REPORT ON SUB-MEMBRANOUS LOCAL TREATMENT OF PHARYNGEAL DIPHTHERIA.*

BY A. SEIBERT, M.D.,

New York.

IN October of last year I exhibited a syringe devised by me for a sub-membranous local treatment of pharyngeal diphtheria, at a meeting of the staff of the German Hospital and Dispensary in New York. On December 6, 1890, my first report with a full description of this method was published in the *New York Medical Journal*, and at a meeting of the pediatric section of the American Medical Association, held in Washington in May last, I reported on thirty-five cases (ARCHIVES OF PEDIATRICS, June, 1891, p. 428). To-day I can report on fifty more cases, of which four are scarlatinous diphtheria.

This treatment consists in injecting fresh chlorine water (U. S. Pharmacopœia) through the diphtheritic pseudo-membrane into the inflamed mucosa below. I now inject about fifteen drops into each spot, and according to the extension of the process as many as six or eight injections are made in one sitting.

Thirty-seven of these fifty cases occurred in the practice of other physicians, who were kind enough to report them to me for publication; the remaining thirteen were treated by me since May of this year. The gentlemen who favored me with their reports are: Drs. Garrigues and Schlegel, of New York, each with three cases; Dr. H. T. Patrick, of Chicago, with ten cases; Dr. F. H. Bode-nius, of Madison, Wis., with ten cases; Dr. Frank Rainie, of Manistique, Mich., with four cases; Dr. L. J. King, of Visalia, California, with six cases, and Dr. J. C. Fritch, of Findlay, Ohio, with one case.

Of these fifty patients five were six to twelve months of age; thirteen were two to four years of age; fifteen were

*Read before the American Pediatric Society, Washington, D. C., Sept. 24, 1891.

five to seven years of age; two were nine years of age; ten were ten to thirty years of age.

The injections of chlorine water proved effectual in *checking* the diphtheritic process in forty-two cases; they showed but partial effect in four cases, and had no apparent effect in three cases.

The beneficial effect of this treatment was noticed within three to six hours in seventeen cases; within twelve hours in fourteen cases; within twenty-four hours in ten cases; the time not stated in six cases, and no effect in three cases.

Complete recovery (including disappearance of membranes) after injections occurred in one day in five cases; in two days in seventeen cases; in three to four days in three cases; in five to eight days in eleven cases; not reported in ten cases; died, four cases.

The beneficial effect spoken of consists in a lower temperature, an improved heart action and general better subjective symptoms. Wherever the diphtheritic process is completely checked, all symptoms, with the exception of dysphagia and the visible pseudo-membranes, disappear very suddenly. In Case III., reported by Dr. Patrick, a child of five years, which first had laryngeal diphtheria and was intubated February 26 and the tube removed on March 2, this action of the chlorine water is particularly noticeable, for on the day after the removal of the tube high fever began and a thick membrane formed on the left tonsil. Two injections of a weak solution (0.2 %) of the chlorine water were made, each one being followed by a fall of temperature and pulse from 104° F., and 170 beats to 99° and 128 beats within a few hours. The child was practically well on March 5 and discharged cured soon after. In my last case of fresh pharyngeal diphtheria in a boy aged fourteen years, I made three injections of the officinal aqua chlori in my office at 3 P.M., one into each tonsil and one into the left velum palati. At 8.30 P.M., five and a half hours later, I found the boy in a sound sleep with normal pulse and temperature, the latter having fallen from 102 $\frac{3}{4}$ ° F. Headache, back-

ache and nausea had disappeared, appetite had come. The membranes were all *in situ* still, but the cervical glands had diminished in size. As the pseudo-membranes disappeared the next day, he was discharged cured within twenty-four hours from the time treatment began.

In those cases where an incomplete action of the injections is noticed, the diphtheritic process usually extends over parts of the naso-pharynx not accessible to this syringe. Sometimes the aqua chlori is too old and has lost its strength. The gentlemen who reported these thirty-seven cases all used the weaker solution of 0.2%, which is but one-half as strong as the officinal preparation, and comparatively slower and less effective in its action upon the diphtheritic process. Since I have used the officinal drug and always take fresh-made chlorine water for each visit, my results have even been better than before, inasmuch as the duration of the illness after the injections is shortened even more than before. The little operation should be carefully performed so as to bring the fluid deep enough and to undermine the pseudo-membrane to its full extent.

Of the fifty patients treated four died. Two of these, reported by Dr. Bodenius, children aged seven and seven and a half years, respectively, had septic diphtheria with temperatures of 98.5° and 99° F. when injected; in other words, toxic invasion of the nerve-centres was present, a condition which naturally can never be influenced by any local treatment. I have flatly refused to interfere in several cases seen in this advanced stage of the disease in consultation.

The third fatal case was seen by Dr. Garrigues; simultaneous infection of the mucosa of the whole throat and nose, resulting in death, in spite of injections and other treatment, within five days. Cases of this kind will always occur and will usually terminate fatally. Local treatment cannot influence infected regions not within its reach.

The fourth fatal case, reported by Dr. Schlegel, was one of scarlatinous diphtheria. Tonsils and pharynx

were affected by rapidly spreading necrosis on the seventh day. The injections of chlorine water made then brought this process to a stand-still, the temperature falling from 104° F. to the normal, and the throat clearing two days after this treatment was instituted. Twelve days after the throat was clean this child died, after the opening of a deep-seated cervical abscess. I have treated three cases of fully developed scarlatinous necrosis by daily injections with marked success, the children, aged, two, three and five years respectively, making quick recoveries, and the temperature falling within three hours after each injection. A complete checking of this process at once is of course out of question in this disease.

Of the recovered cases not one developed diphtheritic paralysis.

As to nephritis, nothing was said in these reports, not one of my cases presented this complication, though albuminuria was seen in such as were sick more than three days when treatment began.

Including the thirty-five cases of pharyngeal diphtheria reported before (ARCHIVES OF PEDIATRICS, June, 1891) my collection now comprises eighty-one cases of pharyngeal and four cases of scarlatinous diphtheria treated within the last ten months, with a mortality of six cases, equal to about 7.5%.

Sub-membranous local injections of chlorine water in pharyngeal diphtheria therefore may be applied with good effect in all cases, where the process is yet accessible to local treatment.

THIRTY-SEVEN CASES OF PHARYNGEAL DIPHTHERIA TREATED BY SUB-MEMBRANOUS INJECTIONS BY OTHER PHYSICIANS.

SEIBERT: *Treatment of Pharyngeal Diphtheria.*

107

CASES.	No.	AGE.	DURATION OF ILLNESS WHEN INJECTED.	EXTENT OF DIPHTHERIA.	HOW SOON DID INJECTION ACT.	COMPLETE RECOVERY.	DEATH.	CAUSE OF DEATH.	REMARKS.
Dr. H. F. Patrick, Chicago.	1	3 years	2 days	Tonsils.	Better next day	48 hours.	.....	.....	.....
	2	2½ ..	2 days	Tonsils.	Next day feels well, is about 100°	2 days.	.....	.....	.....
	3	5 ..	6 days	First in larynx, croup, intubation, removal, one day later membrane on tonsils.	In 3 hours, 104-100°	2 days.	.....	.....	.....
	4	9 ..	2 days	Tonsils, pharynx and palate, nose.	In 24 hours, later no apparent effect, other treatment.	Later, but had diphtheritic paralysis.	.....	.....	.....
	5	4½ ..	3 days	Tonsils, uvula.	In 12 to 24 hours.	2 days.	.....	.....	No other treatment throughout.
	6	4½ ..	4 days	Tonsils, later nose, (offensive odor.)	In 12 hours, tonsils free in 3 days, nose after 6 days.	6 days.	.....	.....	.....
	7	19 ..	2 days	Tonsils.	In 12 hours.	24 hours.	.....	.....	.....
	8	6 ..	3 days	Tonsils, pharynx post. and palate.	In 12 hours.	2 days.	.....	.....	.....
	9	22 ..	3 days	Tonsils, post. pharynx, uvula.	In 6 hours.	2 days.	.....	.....	.....
	10	5 ..	7 days	Tonsils and nose.	In 12 hours.	Later under other treatment, though injection acted well.	.....	.....	.....

CASES.	NO.	AGE.	DURATION OF ILLNESS WHEN INFECTED.	EXTENT OF DIPHTHERIA.	HOW SOON DID INJECTION ACT.	COMPLETE RE- COVERY.	DEATH.	CAUSE,	REMARKS.
Dr. H. J. Garrigues, New York.	1	27 years	4 days	Tonsils and phar.	In 12 hours.	12 hours.	.....	.....	Perfectly well next day.
	2	30 ..	7 hrs.	Tonsils, pharynx, soft palate. Re- peated new for- mations. Very serious case.	1-2°, 2-none, 3-1°, 4-marked	1 month. Each injec- tion had a marked ef- fect for good.	.....	.....	Repeated new chills and forma- tions of mem- brane.
	3	5 ..	2 days	Tonsils, post. wall, finally whole throat.	Apparently no effect.	.....	Fifth day.	Exhaus- tion.	.....

CASES.	No.	AGE.	DURATION OF ILLNESS WHEN INJECTED.	EXTENT OF DIPHThERIA.	HOW SOON DID TEMP. DECREASE AFTER INJECTION?	RECOVERY.	DEATH. HOW SOON?	DEATH OF WHAT?	REMARKS.	
Dr. Schlegel, New York. <i>Primary Diphtheria</i>	1	4 years	6 days	Both tonsils, uvula and pharynx.	In 24 hours normal temperature 102° F.	2 days.	.....	.....	.....
	2	6 ..	3 days	Tonsils and phar.	Next day, 104-2 days.	.....	.....	.....	.....
	3	6 ..	7 days	Tonsils and phar., spreading rapidly	104° to normal in 2 days. Diphtheria disappeared	.....	Twelve days after throat is clean, child died after opening of deep-seated abscess.	.....	.....
<i>Scarlatinal Diphtheria</i> Dr. J. C. Fritch, Findlay, Ohio. Dr. Frank Rainie, Manistique, Mich. 4 cases; 1 family. Sick same time. 1st case dead in 3 days (9 years) without injection.	1	17 ..	2 days	Tonsils.	After 12 hours. 1 day. 102°-99°.	.....	.....	.....	Had five cases in one family just before, all lasting long. Treatment: Lactic acid c. c. All recovered.
	1	18 ..	1 day	Tonsils.	In 24 to 48 hours.	After 48 hours.	Brother of Case 1 nine years, died the day of illness; sick three days; no injection. (Might have been checked on second day.)
	2	15 ..	6 days	Tonsils.	In 3 days.	4 days.
	3	9 ..	1 day	Lateral walls of pharynx, palate.	Temperature and pulse better in 6 hours.	2 days.
	4	6 ..	1 day	Tonsils.	In 6 hours.	3 days.

CASES.	No.	AGE.	DURATION OF ILLNESS WHEN INJECTED.	EXTENT OF DIPHTHERIA.	HOW SOON DID INJECTION ACT?	COMPLETE RE- COVERY.	DEATH.	CAUSE OF DEATH.	REMARKS.
Dr. F. H. Bodenius, Madison, Wis.	1	1 year	.....	Tonsils.	In 5 hours, 104- 100°.	All discharged cured within five to nine days.	.....	.....	.....
	2	7 ..	.....	Tonsils and uvula.	In 5 hours, 102- 99½°.		.....	.....	.....
	3	6½ ..	.....	Tonsils and uvula.	In 5 hours, 103½-100°.		.....	.....	.....
	4	11 mos	.....	Lateral walls of pharynx.	In 5 hours, 103⅔-101°.		.....	.....	.....
	5	9 ..	.....	Tonsils.	In 5 hours, 102- 100°.		.....	.....	.....
	6	7 years	.....	Pharynx, tonsils and uvula.	In 5 hours, 104- 101⅔°.		.....	.....	.....
	7	6 mos	.....	Tonsils.	In 5 hours, 103- 100⅔°.		.....	.....	.....
	8	8 ..	.....	Tonsils and uvula.	In 6 hours, 102- 99⅔°.		.....	Myocard- itis.	.....
	9	7 years	.....	Septic diphtheria.	None.		.....	Nephritis.	.....
	10	7½ ..	.....	Septic diphtheria.	None.		.....	.....	.....
Dr. L. J. King, Visalia, Cal.	1	1 ..	.....	.....	.....	All recovered. Satisfaction.	.....	.....	.....
	2	.....	.....	.....	.....		.....	.....	.....
	3	.....	.....	.....	.....		.....	.....	.....
	4	.....	.....	.....	.....		.....	.....	.....
	5	.....	.....	.....	.....		.....	.....	.....
	6	.....	.....	.....	.....		.....	.....	.....

DISCUSSION.

DR. KOPLIK.—I think Dr. Seibert's report is a bacteriological experiment as applied in therapeutics. Dr. Seibert is very modest in his claims. He does not claim to cure every case. I remember the time when diphtheria locally was treated with the actual cautery and the strong stick of silver nitrate. Later we were told to leave the membrane alone. Now there is a movement in the opposite direction. We could talk all day on the local treatment of diphtheria, but we must remember one thing, *that the severity of any disease varies with the epidemic.* Whether the lesion be local or constitutional, or both, the severity and mortality vary, and in no disease is this so marked as in diphtheria. We cannot forget that diphtheria is also a disease of the greatest constitutional severity. Long before we are called to the bedside, in some cases even with a limited local lesion, the die is cast and we can often say as soon as we see the patient that he is going to die. In one case I was called on the third day of the child's illness, and though the child lived fourteen days I made the prognosis at that first visit that the disease would be fatal, the poison having fairly overpowered the constitution from the start. I do not say that we should leave the membrane alone or treat it harshly. We must remember in our treatment that the tonsil is a lymphatic gland or node with one side exposed. The injection reaches only locally where you penetrate. In marked cases there is extensive cervical adenitis. It seems to me that in some of these cases, even after the membrane disappears, the patient is doomed. The system is already poisoned. You look at the heart, kidneys, and other tissues post-mortem, and you see that recovery would have been impossible. We have spray and treat locally and make bacteriological experiments, but we should not forget the anatomy of the part nor the constitutional effects of the disease. Dr. Seibert may stand on this ground. Dr. Fraenkel and others are working on a constitutional basis. They are working to obtain effects that drugs do in syphilis, and are sanguine in expecting to see bacteriological experiments performed right into the circulation, and that thus the local lesion may be affected and cured through a constitutional treatment after the system has been fortified by something which the disease is powerless against. Look at laryngeal diphtheria. Nothing is done except to make the patient breathe. The local lesion is not treated, and in spite of this we have recover-

ies varying from 24 per cent. upward. The day will come when we will intubate, and then we will do something else that will lessen the time of recovery, cure the local lesion and save the patient from complications.

DR. NORTHROP.—I would like to know upon what Dr. Koplik bases his statement that this is correct bacteriological treatment?

DR. KOPLIK.—I do not mean to convey the idea that this is absolutely correct treatment. I mean that it is simply an attempt to affect a case by local treatment with antimycotic injections. I doubt whether this attempt will be the best.

DR. NORTHROP.—How deep do the bacteria go? Dr. Seibert makes deep injections into the tonsils. Now, as to the glands of the neck, are the deep injections to have any effect upon them?

DR. KOPLIK.—The bacteria of diphtheria are not found in the deep tissues. The effects of their action are found in the tissues and internal organs. How deep Dr. Seibert means to go and affect the tissues is for him to answer. I think the injections stay where they are put. I do not think it is possible to affect the deeper lymphatic. If we could do this we might annihilate or counteract some of the poison which invades the lymph glands and kills the patient.

DR. SMITH.—Will Dr. Seibert state how much of the antiseptic he employs?

DR. SEIBERT.—Fifteen drops for each injection.

DR. SMITH.—Do the points extend deeply enough to reach the vessels? Is there any hæmorrhage?

DR. SEIBERT.—The points are supposed to reach the lower layer of the inflamed mucosa. Occasionally we have slight hæmorrhage of a few drops. The points will certainly reach the capillaries where the pseudo-membrane is not thick.

DR. SMITH.—It seems to me that the fact that the blood vessels are lacerated and opened by this operation is an objection to such treatment, because the toxic albuminoid which is generated in the pseudo-membrane and upon the inflamed surface, by the action of the Klebs-Loeffler bacillus, and which, taken up by the blood-vessels and lymphatics, cause systemic infection, could enter the system readily through the lacerated capillaries, would not also these punctures be likely to increase the inflammation?

DR. NORTHROP.—I do not want to get up every moment, but I am interested greatly in this matter. I am willing to accept the facts that Dr. Seibert gives and approve so far as I understand the operation; but we have also definite facts in bacteriology. When Dr. Seibert introduces deep antiseptic treatment, is he trying to counteract the bacteria deep in? Let us try to get at some of the facts first and not discuss explanations which are most confusing. There are ptomaines or toxines or what-not, but the *bacteria are limited to the superficial surface.*

DR. HOLT.—I would like to ask the age of these patients?

DR. SEIBERT.—Five of them were from six to twelve months of age, thirteen from two to four years.

DR. HOLT.—My experience may be unfortunate. I have come to the conclusion that the drug treatment of diphtheria is a failure. Of course the results vary with the severity of the epidemic. In one institution in ninety-one consecutive cases, nearly all of which were under two years of age, the mortality was 60 per cent. I am not encouraged with that experience or any other to persevere with the drug treatment, and therefore I think this treatment of Dr. Seibert's is in the right direction. Diphtheria, I believe, is first a local, then a constitutional disease. It is rational as in septicæmia to attack the local disease vigorously. If Dr. Seibert puts into the capillary vessels an antiseptic solution, it will dispose of the bacilli which may chance to enter at the same time. The results reported justify us in trying this method carefully. Parenchymatous injections into the tonsils have been used for twenty years and successfully. I think we are driven to local treatment if we wish to influence the progress of the disease in its early stage. Gargles and sprays are often used with the idea that this is germicidal treatment. This is a mistake; they may be of great value in securing cleanliness, but they are not to be considered germicidal. We have not removed the dangers of the patient from toxæmia. The great obstacle to the treatment proposed is the difficulty in making the injections in young and unruly children. Two people would seem to be needed besides the operator—one to hold the patient's body and one to steady his head. This, however, is not a vital objection if the operation is as successful as Dr. Seibert believes it to be. The question is not how much of an operation is it, but how much does it benefit the child? For one I shall give it a thorough trial.

DR. ROTCH.—I should like to ask the proportion of cases in which the tonsils were affected and in which there was no membrane on them. It makes a great difference what parts are covered by the diphtheritic membrane—whether the tonsils of the naso-pharynx, the later being much more richly supplied with lymphatics than are the tonsils, septic absorption takes place far more readily and the disease at once assumes a more fatal type.

DR. SEIBERT.—I have a chart showing this and other details. In but three cases the tonsils alone were affected. So that it can be left out of the question that we had to do with a benign affection of the tonsils. The Loeffler bacillus was found in over thirty of the cases; in twenty I did not find it. In many I did not look. I make it a point to examine the membrane whenever practicable. It is easy to find the bacillus, and it excludes the possibility that we have to do with a non-diphtheritic trouble.

DR. ROTCH.—I did not in any way question that they were true cases of diphtheria, but merely wished to know the location and extent of the membrane.

DR. SEIBERT.—In nearly all the cases the tonsils were affected, but the disease was confined to them in only three of my own cases. Twenty-one of twenty-four cases reported by others showed other parts of the pharynx affected besides the tonsils.

DR. KOPLIK.—I wish to ask whether the Doctor has made any examination as to the diffusion of the liquid in and around where the injections were made? As I understand him, he gets under the membrane and then injects the fluid. How widely underneath the membrane are the effects carried and the albuminoid substances affected?

DR. PUTNAM.—Were there only three cases in which the disease was limited to the tonsil? How many had extensive lesions?

DR. SEIBERT.—In more than one-half of the cases that I treated, and crediting to the histories of others, the disease had invaded the visible pharynx; whenever the naso-pharynx was also affected the effect of the injections upon the visible parts of the diseased mucosa was always noticeable.

DR. PUTNAM.—Have you seen, the day following, extension of the membrane in other directions?

DR. SEIBERT.—I have seen an extension in all cases in which I was not thorough enough—where I was too timid and made only one injection where I should have made two. The chlorine water acts only where it is brought.

How far it goes I do not know. In rabbits and guinea pigs, which I used in my experiments, the injections caused a swelling lasting from two to three days, gradually passing away.

DR. PUTNAM.—Was there any evidence that the extension was due to the injection?

DR. SEIBERT.—Never. In most of my cases I had œdema of the pharynx, a succulent uvula and an angry appearance of the pharynx, usually seen in genuine diphtheria. Six hours after the injection the parts around the injected spot look pale, and the œdema disappears usually within twenty-four hours. I have used the same syringe in all cases, all winter, and had chlorine water injected into my own tonsils, and no ill effects ever occurred. Chlorine water will kill anything on the instrument in a few seconds, and is perfectly safe. A niece of mine, aged five years, was treated five days for follicular pharyngitis before I saw her. I found diphtheria of the soft palate, the uvula, the posterior and lateral walls of the pharynx down to the larynx, and of the tonsils. The child had cold extremities, a miserably fast pulse, and a temperature of 99° in the rectum. I did not think the child would live another twenty-four hours. In spite of this opinion the parents insisted on my using injections. I made seven at once. The next day the temperature was $101\frac{1}{2}^{\circ}$; pulse 120, and strong. Three days later the child was absolutely well. If my own child was affected to-morrow, I would not be afraid, provided I could reach the diphtheritic spot with my syringe. Where does the chlorine water go? If diphtheria is a local disease, and if the bacilli of Loeffler are found under the pseudo-membrane, then we must bring our drug to that spot. We have bacilli in the mouth, but to produce diphtheria it is absolutely essential that they *enter the mucosa*. This is Oertel's teaching and also Heubner's. There can be no diphtheria unless the bacilli reach the capillaries of the mucosa. The bacilli enter into the walls of the vessels and cause the inflammation. The ptomaines do not cause the inflammation, or we should have diphtheritic inflammations following the absorption of the diphtheritic tox-albumen, instead of the well-known paralysis. It is *not* intended to make *deep* injections, but to bring the needle-points and the chlorine water *into, and immediately below, the inflamed mucosa*.

Whatever the action of the procedure may be, it will be well to make a trial, as in stomach-washing. When I introduced stomach-washing in infants here, and stated

that with Epstein's method we could check nausea in cholera infantum, provided that the central nervous system was not invaded by the milk poison, very few believed what I said, and you can read in the "ARCHIVES" of a young enthusiast going around with a stomach tube sticking conceitedly out of his coat-tail pocket, and I presume I am the man referred to. I think I am understood by all. Diphtheria is first a local disease of the mucosa. How did the mucosa become diseased? The bacilli must penetrate the epithelial layers of the mucosa so as to get down to the lower stratum containing blood-vessels, irritating these and causing exudation of serum into the epithelial layers, thus forming the pseudo-membrane. The tox-albumen causing diphtheritic paralysis is a product of the action of the Loeffler bacilli upon tissue-albumen. As this is not present upon the surface of the mucosa, it is evident that the bacilli must *enter* the tissue to come into close contact with this albumen necessary for the toxin. Where are the bacilli before the membrane forms? They certainly have entered the mucosa and *caused* the pseudo-membrane to form. First comes the intermingling of sub-mucosa and bacilli, then the result, the pseudo-membrane. Therefore our treatment must attack this invaded region. Whether chlorine water injected here destroys the bacilli directly, or so changes the tissue as to stop bacterial growth, is immaterial; certain it is that it acts promptly and germicidal. Chlorine water only acts *locally*, as the chlorine immediately combines with surrounding tissue. Sublimate and carbolic acid would be readily absorbed and might injure. Intra-tonsillar injections of a 3 per cent. solution of carbolic acid have been made by Heubner in scarlatina alone for the last ten years. He has had good results. My injections are not deep, only deep enough to reach the lower stratum of the invaded mucosa.* Sub-membranous injections in diphtheria were first devised by me. In fifty cases I only used a gag in an unruly boy of fourteen years, and then only for the first injection. The smaller the child, the easier it is to make them obey. The mother holds the child, and any one can hold the head; the tongue is pressed down by a spoon, the syringe is passed over the spoon until the points are in position; these are then pressed through the pseudo-membrane as far as necessary, then the spoon is dropped, and the injection is made

* The needle-points are now made of two sizes, the one one-eighth and the other one-sixteenth of an inch in length.

slowly. I have never had any trouble, nor have I been dismissed from any family on the ground of the severity of the treatment.

DR. FRUITNIGHT.—How frequently were the injections made?

DR. SEIBERT.—If you make the first injections thoroughly, you may not have to make any more in *primary* diphtheria. In my niece I used the syringe seven times during the first visit, and no more. Of course I have other treatment besides this. I treat the child and not the symptom. As a rule one injection under each pseudo-membrane is enough. If the temperature does not fall, the injection was not right in quantity or quality, or you have not reached the right spot. Eight times at one sitting is certainly enough. Two injections on three successive days was the extreme number made in a case of pharyngeal diphtheria. Wherever the toxic symptoms are so far developed as to let them point to an early heart paralysis, I will abstain from all local treatment, for this is purely local treatment, and can only *prevent* general symptoms if employed early.

DR. ROTCH.—This treatment, though not in accordance with our knowledge of the anatomy and physiology of the tonsil, has apparently proved successful, clinically, in Dr. Seibert's hands. I would like to ask if chlorine water is undoubtedly antiseptic?

DR. SEIBERT.—Geppert, in Bonn, has made investigations as to the properties of chlorine water. Schmidt-Rimpler has within a few weeks published an article that corroborates the statement that chlorine water is more germicidal in its action than other antiseptics, and is one of the best we have.

OF all the fatal affections that occur in the first year of life, forty per cent. are diseases of the digestive, and twenty per cent. diseases of the respiratory organs. In the second the main cause of death changes entirely. For of forty-five deaths from the two causes in that year, but nine are due to diseases of the digestive, and thirty-six to affections of the respiratory organs. Thus, in the first year the stomach and intestines, and in the second the bronchi and the lungs, are the sources of the high death-rate.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

Clinical Memoranda.

A CASE OF INFANTILE PNEUMONIA TRAVERSING THREE DANGEROUS CRISES.¹

By M. PUTNAM JACOBI, M.D.,

New York.

THE case of which I offer a report presents no strikingly original or exceptional features, but is a little noteworthy from the special intensity of some of the conditions and also their combination.

The three crises which have been mentioned in the title of this report, each involved danger to life. The first depended on a peri-pneumonic pulmonary congestion, so extensive and rapidly increasing as to threaten to be overwhelming.

The second danger arose from an extremely high temperature.

The third phase of the morbid process began with collapse symptoms that seemed at first to be due to the high temperature which had preceded them. But in a short time it became evident that an effusion had taken place into the pleural cavity, and the persistence of this and the long duration of the pleural fistula after an operation for empyema, kept the little patient in a critical condition for more than two months.

Nettie Cohn, a Jewish baby nineteen months old, after suffering from diarrhœa throughout the summer, began to cough on August 29th. Fever began on the 31st, and was from that time constant until the date of admission to the hospital, September 5th.

On that day the child was found so extremely apathetic as to be scarcely conscious. The rectal temperature was 103°; the pulse 124. Over the lower half of the left lung

¹ Read before the Section on Pediatrics of the New York Academy of Medicine, January 14, 1892.

percussion resonance was diminished, respiration weakened in intensity during inspiration, and mixed with subcrepitant râles during expiration.

Over the right lung the percussion resonance was nearly normal, the respiration moderately harsh, the expiration equal to inspiration, but not prolonged. There were no râles.

This condition was found at noon. At 8 P.M. resonance over the middle of the right lung had become distinctly tympanitic and the respiratory sounds were much harsher.

Tympanitic resonance also existed over the middle of the left lung, and here the râles had become more abundant. The respirations were 72, the pulse, 144; apathy and stupor increased; temperature still 104°.

In several English and American text-books which I have consulted, no mention is made of tympanitic resonance as a sign of particularly intense congestion. Gerhard, Guttman, and other German writers, however, long ago interpreted this sign as an indication that the pulmonary alveoli had ceased to be distended with air, that their walls had therefore become flaccid, thus comparable to the walls of the hollow abdominal organs which also contain air, but which are not over-distended by it. Under these circumstances a tympanitic note is elicited by percussion, in place of the normal pulmonary resonance, or the diminished resonance which attends a moderate degree of congestion.

The transition from normal to tympanitic resonance, or rather, inversely, from tympanitic to normal resonance, can be experimentally demonstrated on the excised lung of a sheep, which is first fully inflated, and then allowed to completely collapse. The following passage from Gerhard ("Auscultation and Percussion," 1876, pp. 117-119.) offers a plausible theory of tympanites produced elsewhere than over cavities in the lungs.

"If one percusses a region of the thorax overlying lung, the sound elicited is not tympanitic; if an excised lung be percussed, the sound obtained is tympanitic; but if the lung be inflated, the percussion sound becomes again tympanitic. . . . The non-tympanitic normal thoracic reso-

nance is due to the over-distention of the walls of the pulmonary alveoli. When thus tense, these walls are made to vibrate by the percussion stroke, and these unequal vibrations, mingling with those of the air columns, give the non-tympanitic sound. When the walls are relaxed they do not vibrate, the vibrations of the column of air remain pure, and give rise to a tympanitic sound. So in the excised lung. Pathologically, this condition occurs, when the lung retracts before a pleural effusion; and infra-clavicular tympanites has long been recognized as a concomitant of a pleural effusion below.

“A second cause of tympanitic resonance is the transmission of the tympanitic sound from a bronchial tube, through a layer of consolidated lung.

“And a third condition of tympanites is the simultaneous filling of the pulmonary alveoli with air and fluid, thus, observes Gerhardt, in the first and third stages of pneumonia, and in œdema of the lung.”

Both the latter conditions existed in the case of this child. The greater intensity of the tympanitic resonance over the middle of both lungs, *i. e.*, over the largest bronchi, implied that the second cause of tympanites was perhaps in this case the most effectual factor of the phenomenon.

It indicated, therefore, an extensive exudation into the alveoli of both lungs, and a morbid process so rapidly spreading as to threaten to overwhelm the vital forces in a brief time. The process had spread, and the condition deteriorated in six hours, although, during this time, diffusible stimulants of camphor, ether, carbonate of ammonia and senega had been steadily administered.

Dry cups were applied over the chest for one-half hour, to attempt to divert the congestion towards the surface of the chest.

It is difficult to decide how far the remedy fulfilled the expectation, for at 9.45 the temperature was found to have risen to 106°, and it became imperative to directly attack this condition by means of the cold pack. Three packs were applied, each of ten minutes' duration, and after

the third the temperature had fallen to 103.5° . Three hours later it had again risen to 106° . The three packs were repeated; the temperature fell to 104° , the pulse to 138; the respiration, which had remained unchanged by the cupping, indeed for a few minutes had been accelerated, was now 62.

Twice between 1 A.M. and 9 A.M. the temperature rose as far as 105° , and each time the application of three cold sheets reduced it to 103.5° . On the morning of September 6th the temperature was again 105° . But the respirations had fallen to 60, and were much deeper, the pulse to 120, while the stupor was greatly lessened, and the appearance of the child much improved.

Distinct bronchial breathing was now heard over the middle of the right lung, and in the same place tympanitic resonance persisted. Over nearly all the rest of the lung, the inspiration was harsh, the expiration prolonged, the percussion note unchanged. At the left lung the resonance was no longer tympanitic but diminished; abundant subcrepitant râles were heard all over the lower third.

Thus it was evident that a broncho-pneumonic process, begun in the left base, had extended to the middle of the right lung, there to be surrounded by an extensive peri-pneumonic congestion. This, having reached its height, was now checked and likely to recede.

On the evening of the same day, the area of tympanitic resonance became still more restricted over the right lung; but tympanites reappeared at the left, over a triangular space between the scapula and the spine. Anteriorly the resonance was diminished, and distinct bronchial breathing was heard from the clavicle to the fourth rib.

As, a few days later, it became evident that a pleural effusion existed at this locality, it seems probable that the above signs indicated the first appearance of the effusion, twenty-four hours after the symptoms of the pulmonary disease had reached their maximum severity. The tympanites observed posteriorly at the apex, indicated retraction before the effusion, of a portion of lung tissue which had not been infiltrated by the pneumonia. The pleural

effusion may be considered as a direct extension of that which had already taken place into the alveoli of both lungs.

During the day, while the stimulant was continued, antipyrine was given symptomatically, five grains every three hours. The cupping was repeated at 5 P.M.

At 6 P.M., when the first signs of the effusion were made out, the temperature had fallen to 103.5° , the pulse to 132, the respirations to 51. During the 7th of September the temperature ranged from 104 to 102° , the respiration from 54 to 24.

The antipyrine was then suspended, and 15 minims brandy alternated with the camphor and other stimulant.

On the 8th the percussion note under the left clavicle was found entirely dull and flat. The temperature, varying considerably during the day, ranged around 104° .

But the pulse had become irregular, and excessively rapid and feeble. The stimulant was increased and a minim of tincture of digitalis added every two hours.

It has been said recently, that the increased force of ventricular systole excited by digitalis, is dangerous in the threatened cardiac collapse in pneumonia, because it tends to drive more blood into an already hyperæmiated lung. Much clinical experience, however, stands opposed to this theoretical objection, and the objection certainly did not seem to hold good in this case.

The attempt was made, however, to meet the objection, by associating the digitalis with a remedy which should tend to draw the blood to the surface of the body, and the child was given a warm mustard bath. Immediately after the bath, the pulse fell to 120, became regular and full; but half an hour later the child became excessively weak, the pulse feeble, the hands and feet cold, and so remained for two hours.

It was inferred that the revulsive effect of the bath had been more than counterbalanced by an excessive reflex stimulation of the heart, after whose withdrawal collapse was even more imminent than before. The bath was not therefore repeated; but inhalation of oxygen begun.

On this day, September 8th, the temperature fell spontaneously from 103.4 to 100.6°, while the lips of the child became bluish, the rest of the face pale, the feebleness great. In the afternoon the temperature rose again to 103°, and coincidentally the other symptoms improved. On this same day, however, the percussion dulness at the left apex extended to the fourth rib, into the axillary space, and was absolute in character. The respiration of the right lung was beginning to assume a puerile character, sign at once of retreating congestion from its area, and of increasing restriction of the respiratory field of the left lung.

On the 10th digitalis was suspended, after forty-eight hours' administration.

On the 12th the respiration of the right lung was entirely puerile, and tubular breathing was heard under the left clavicle.

On the 13th quinine was given, grs. iii., every three hours. The temperature was ranging from 102 to 100°, the pulse from 130 to 120, the respirations from 60 to 54; thus out of proportion to the pulse, but still more to the temperature. Nearly complete defervescence occurred on the 14th, the eighth day after admission, the 14th of febrile illness. The temperature fell to 99.8°, thence oscillated about 100°.

The left half of the chest was found to be one-quarter inch larger than the right, but this difference subsequently disappeared; perhaps as the retraction of the lung became more complete.

As the child now presented no urgent symptoms, and at the time it was not considered certain that the effusion was purulent, opportunity was offered for spontaneous absorption while the strength of the child should be recuperated, by feeding and tonic treatment. Much improvement in fact occurred. The temperature remained nearly normal, but the respirations continued to range between 50 and 60. This rapidity was unaccompanied by any symptoms of dyspnoea.

The heart was not found displaced till the 8th of October. At this date the bronchial breathing had disappeared, but respiration was scarcely audible. The child's face rather suddenly became œdematous, indicating absorption of pus. The anterior wall of the left chest looked bulging.

An aspirating needle was plunged into the third intercostal space and five ounces of thick, purulent fluid withdrawn. The heart did not return to its place.

Dr. Koplik kindly examined this fluid and found in it numerous streptococci. This observation I was subsequently able to confirm by my own.

On October 10th a free incision was made behind, in the ninth intercostal space; twenty-one ounces of pus evacuated, a drainage tube inserted, this covered with a valve of rubber tissue, and then the usual antiseptic dressing applied. The cavity was not washed out. The apex of the heart was found one inch to the left of the right nipple line immediately after the operation. Resonant percussion note was heard all over the left chest. But it was evident that the expansion of the lung was incomplete, and this might have been expected on account of the pneumonia which had preceded the purulent effusion.

The dressing first became soiled and was changed on October 16th, six days after the operation. It was again changed on the 22d and the 26th and on the 28th; and on the latter date the cavity was irrigated with Tiersch's solution.

The washing was repeated November 8th and 12th. On November 29th the fistulous cavity was still four inches deep and quite broad. The tube was removed and replaced by iodoform gauze saturated with balsam of Peru.

December 13th the fistula was found much narrower, but quite as deep. The balsam gauze was replaced.

December 21st the gauze was found on the dressing; the fistula closed. The child was well, fat and bright, and was discharged from the hospital January 2d. Its entire illness had lasted three months.

The first evidence of pleural effusion was offered on the evening of September 6th, twenty-four hours after the admission of the child to the hospital, eight days from the beginning of the fever.

It must be admitted that the diagnosis of effusion was not made at once, but only several days later. The infra-clavicular signs were attributed to a focus of pneumonic consolidation. There were several circumstances, however, which might have guarded against this error. Thus in the first place, previous to the appearance of dulness and bronchial breathing under the clavicle, there had been no morbid signs in this locality; they had all been concentrated posteriorly and at the base. The sudden leap from the posterior base to the anterior apex, without affection of intervening lung tissue, is not in accord with the continuously extending character of the pneumonic process. Secondly, the appearance of tympanitis in the triangular and between the scapula and the spine was a still clearer indication of effusion, because this is precisely the locality to which a retracting lung retreats. The true significance of these signs, however, was obscured by the fact of tympanitis previously developed in the right lung, where it was undoubtedly due to other conditions than pleural effusion. I think the sudden fall of temperature and accompanying collapse symptoms of September 8th probably marked the moment at which the effusion, two days after its first appearance, became distinctly purulent. At first these signs were interpreted as due to cardiac collapse following upon the high temperature.

In an older subject, a chill would very probably have marked the onset of suppuration. Yet a chill is perhaps particularly liable to be wanting in a purulent pleurisy which occurs in the course of a general infection. Many years ago, I saw a purulent pleurisy occur two days before death, in a girl suffering from scarlatina, at first mild, then suddenly rendered malignant by a generalized invasion of streptococci. In this case no chill, but a very violent pain, marked the onset of the pleurisy, whose purulent character was demonstrated at the autopsy.

I think the intra-pulmonary disease which preceded the empyema in this case was an infectious croupous pneumonia; and not a broncho-pneumonia. There was some irregularity in the mode of development, as might have been expected from the age of the child. The abrupt termination however, the limited extension to the second lung, and rapid clearing up of the same, the violence, for a short time, of the fever, the marked stupor of the child, finally, the supervention of a purulent pleurisy, all point towards this diagnosis. No pneumococci, but only streptococci were found in the pus; but this negative circumstance is of course not conclusive. The delay in the displacement of the heart was unusual, and I think must be attributed to the existence of adhesions at first existing between the pleural and pericardial surfaces, which prevented the heart from immediately following the aspiration of the relatively intact lung. Or else it was the fact that this latter lung also had been involved in the pneumonic process, and therefore was unable, until fully cleaned up, to exercise the full aspiration which we observe in uncomplicated pleural effusions. Or finally, to the foregoing circumstance we may plausibly add, that the infiltrated condition of the left lung, interfering with the retraction of its lower half, compelled the fluid to accumulate in the upper part of the cavity, above the level, therefore, of the heart.

It is a question which perhaps some will not consider an open one, whether the operation was not delayed at least a fortnight too long. Under the circumstances, the chances were all in favor of a purulent pleurisy. It is far more common in such young children, and much more common as a complication of pneumonia than a serous effusion. This being the case, only faint hope could have been entertained of spontaneous absorption. On the other hand, it was certainly important, in the absence of any urgent indication to the contrary, to wait for the subsidence of the acute process in which the empyema originated, and to treat the effusion as a residue of such process.

The record of this case cannot be counted as favorable to the method of non-irrigation, a method I have however

elsewhere employed with much success. Seventy-four days elapsed from the date of the operation to the closure of the fistula. The secretion of pus continued abundant for the twenty days that the dressings were changed without irrigation, and rapidly diminished in the fortnight during which irrigations were practiced.

The reduction of the discharge, however, to almost complete cessation, did not suffice to close the fistulous tract. This, as stated, only began to shrink after simple drainage had been replaced by a stimulating dressing. The expansion of the lung seems to have been chiefly effected by traction of the pleuræ as their granulating surfaces became adherent.

At no time did any necessity seem to exist for resection of a rib. The drainage was entirely free and complete, and, from the age of the child, the flexibility of the chest wall, such that it could readily adapt itself to the lung according to the degree of expansion obtained by the latter.

The operation of free incision and drainage does not stand to resection as aspiration does to incision. Aspiration affords no opportunity for drainage, and is to be unqualifiedly condemned in the treatment of purulent effusion; its utility is limited to serous effusions, and is here immense. But under many conditions, and such were presented by this baby, incision, if sufficiently free, and followed by the use of a drainage tube sufficiently large, facilitates drainage as perfectly as resection can do.

In no other wounds than that of empyema is it considered doubtful that thorough drainage can be effected by a large-size rubber tube. The indication for rib resection, when this presents itself, is not to make a larger opening, but to facilitate the approximation of the chest wall to the lung, so that the abnormal pleural cavity may become obliterated. So long as a cavity persists, pus will be formed in it. Conversely, any means that will lead to the approximation of the pulmonary surface and the thoracic wall is the surest agency for arresting the formation of pus and for obliterating the fistula. When

the lung does not promptly expand after evacuation of the pleural fluid, it can be made to do so gradually by the traction of the pleuræ as these become agglutinated with one another.

The case above reported was instructive on this point; the secretion of pus abated, fell to a minimum, and yet the fistula failed to close. When under the stimulation of the balsam, granulations sprang up over the pleural surfaces, and these became agglutinated, the lung was drawn closely against the chest wall, the pleural cavity obliterated, and the fistula closed.

SEVERE CATARRHAL LARYNGITIS; INTUBATION; BRONCHITIS; RECOVERY.

BY L. EMMETT HOLT, M.D.,

New York.

L. B.—, female, rather a delicate bottle-fed child, eight months old, an inmate of the New York Infant Asylum, was exposed on December 6th by being taken out on a damp, raw day to a distant building with very slight covering. At 4 P.M., a few hours later, there was slight hoarseness and some stridor noticed. The rectal temperature was 101°. Inspection of the throat showed acute congestion of the entire pharynx; there was slight difficulty in breathing, this being entirely inspiratory. Two drachms of syrup of ipecac were given causing free vomiting, and a steam-spray of lime-water used constantly at the child's bedside. In spite of these remedies the dyspnoea rapidly increased, and at 7 P.M. had reached an alarming degree; the pulse was feeble, there was extreme pallor, slight cyanosis, and general prostration very marked, so great that the child seemed likely to succumb in a few hours if not relieved.

The temperature had risen to 103°. Pulse 200.

Intubation was now performed by the resident physician, Dr. Kerley, and in half an hour there was complete relief to the dyspnoea, and great improvement in the general symptoms.

The lime-water spray was continued through the night, and tablets of antimony and ipecac, 1/100 grains each, given hourly, and stimulants freely.

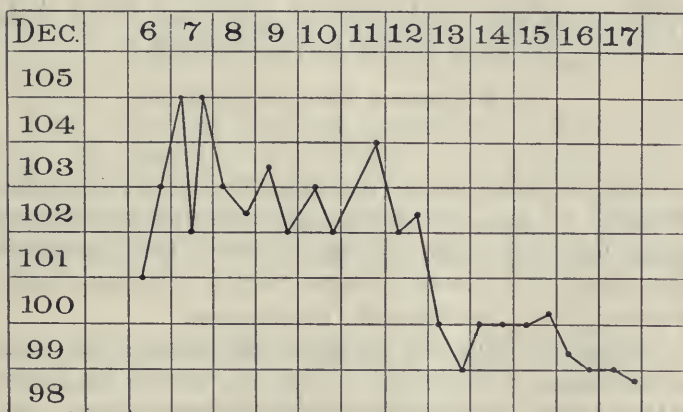
Examination of lungs showed dry sonorous râles, and feeble vesicular breathing.

Dec. 7th.—Prostration still great, the chest filled with moist râles.

Dec. 8th.—Tube removed, but replaced in a few minutes on account of the returning dyspnœa.

Dec. 10th.—Tube removed permanently, and the laryngeal dyspnœa did not return.

The symptoms of acute bronchitis continued until December 13th, after which time the lungs gradually cleared, although a hard dry cough persisted for some time. The voice returned in about a week after the removal of the tube.



Remarks.—This case is interesting, first on account of the very clear dependence of the laryngitis upon exposure.

At the time of intubation the symptoms were so severe that the child would apparently have died unless mechanical relief to the dyspnœa had been afforded.

The very rapid development of the symptoms, and the fact that the dyspnœa was inspiratory only is in quite marked contrast to most cases of membranous laryngitis.

Cases of catarrhal laryngitis of such severity as this are not very uncommon, although the fact is not generally appreciated, but several causing dyspnœa severe enough to necessitate intubation have been met with in the asylum during the past three or four years.

It is quite probable that some of the cases of idiopathic membranous laryngitis supposed to be due to exposure to cold, are really of the severe catarrhal type like the one here detailed, although in this case the dyspnœa was inspiratory only, it is sometimes seen both on in- and expiration. Under these circumstances it is indistinguishable from dyspnœa due to membranous laryngitis.

The preceding chart shows the course of the temperature.

QUESTION OF DIAGNOSIS—WHAT WAS THE INTRA-THORACIC LESION?

By WILLIAM P. NORTHROP, M.D.,

New York.

A MALE child was returned to the New York Foundling Hospital on account of the age limit; all children are called in (from "outside" nurses) when three years old. Five days after return became "sick;" dyspnœa; temperature, 105°; prostration; constipation.

Enema was followed by moderate passage and some improvement in condition. The case was in the service of Dr. O'Dwyer and the following observations were made by him, by Dr. Geo. S. Lynde and myself.

Physical examination of chest—left.—Posterior dulness; absence of respiratory sounds, anterior; dulness and vesicular breathing, upper; axillary line and sixth-space percussion tympanitic. Heart displaced to right; apex-beat in epigastrium; right chest normal.

Exploratory puncture of the chest was negative. In four days from the beginning of illness child was as well as ever. Thoracic signs on left side, however, continued as above recorded.

After ten days of apparent health a similar attack came on; dyspnœa; constipation and fever. After an enema all symptoms disappeared.

After eight days of usual health a third attack came on; physical signs the same as before recorded. An enema was given and with difficulty effected a movement of the

bowels; dyspnœa was not relieved. On the third day of this attack the condition of the patient was critical.

Repeated exploratory puncture found no sign of fluid. It was thought the fluid was too thick or encapsulated, and so failed to be drawn into the largest needle. A free incision was promptly made in an elected location and the intra-thoracic lesion accurately determined.

This case is of interest mainly as a question of diagnosis. What was the intra-thoracic lesion? Let the reader, if he please, glance back over this history and answer the question at this point.

If he has had such a case, and *recently*, he may answer correctly. If the report of this case has any value, it is that the practitioner may have it in mind among the rare things in diagnosis.

What then was found on opening the pleural cavity? What presented at the incision; was it pus; was it thickened fibrin? No; that which presented was, in order, as follows: folds of ileum, cæcum, appendix vermiformis, etc. The case was diaphragmatic hernia.

HIP DISEASE: REPORT OF A CASE.

BY ROBERT JONES, F.R.C.S.,

Liverpool, England,

AND

JOHN RIDLON, M.D.,

New York.

April 18, 1890.—Male, seven years old, has limped for three years, but has never complained of pain. Appetite is good and sleep quiet. Parents and grandparents are healthy, and no cause is assigned for the limping. The left thigh is flexed on the pelvis 39° , but is neither abducted nor adducted. The circumference of the thigh is three-quarters of an inch, and the calf one-quarter of an inch less than that of the opposite side. There is no swelling and no tenderness to palpation, and no motion at the joint in any direction and no pain on manipulation. He runs and hops on this leg without pain or any evidence of inconvenience other than a stiff joint.

For some days after this the afternoon temperature was taken by Dr. Jones, of Newark, N. J., and found to be normal.

The patient was next seen on October 20, 1890. He had complained of no pain, but it was found that the angle of flexion had increased to 45° , and the atrophy of the thigh to one and one-quarter inches and of the calf to one-half inch.

On November 13th the flexion was found to have increased to 52° . The antero-posterior leverage hip splint was then applied. On January 13, 1891, the flexion was found to be completely reduced, and there was slight motion in flexion and rotation, and no shortening. The reduction of the deformity had been accomplished without any pain whatsoever and without confinement to bed. He had gone about as usual, but had used crutches, and an inch and one-half patten on the foot of the sound side. Three months later an abscess appeared on the upper anterior surface of the thigh, and after a further period of four months this abscess opened spontaneously. During all this time there had been no complaint of pain and no crying in sleep; he had not been confined to bed or house for one day, and his general health was good in every way.

This case is reported to illustrate the little value which should be placed upon the symptom, *pain*, in the diagnosis of hip disease. Although pain, usually felt at the knee, is often an early symptom of the disease, and although few escape it at some time during the course of the disease, it is not always present, and must be regarded as of corroborative rather than of diagnostic importance. On the other hand, involuntary muscular spasm restricting and limiting the normal movements of the joint, or absence of motion with a progressively increasing degree of deformity, may be regarded as positively diagnostic, since one or the other is always present from the inception of the disease to its cure, whether that cure results in motion at the joint or in true ankylosis.

The case further illustrates the possibility of reducing a severe deformity by leverage without causing pain or any appreciable destruction of bone, as shown by the length of the limb, and that this can be done while the patient

walks around. We advise, however, that all patients be confined to bed during the period of the reduction of the deformity and for some time longer.

It will be of interest to those who have not seen much of hip disease to note that a tubercular abscess may develop and go on to spontaneous opening without pain or any ill effect upon the health of the patient.

The presence of an afternoon elevation of the general temperature, which has been thought by Dr. R. W. Lovett, of Boston, to be characteristic of the progressive stage of the disease, was wanting in this case, and cannot, we think, be depended upon as a diagnostic symptom.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, January 14, 1892.

AUG. CAILLÉ, M.D., *Chairman*; WALTER LESTER CARR, M.D., *Secretary*.

Contributions of 1891 to our knowledge of diphtheria.—Dr. J. Lewis Smith read the paper. Recent investigations had strengthened the theory that the Klebs-Loeffler bacillus caused diphtheria.

Two distinguished observers had found a bacillus on the mucous membrane of the mouth of a large percentage of the individuals examined in a town where diphtheria was not prevailing, the bacillus in every way resembling the Klebs-Loeffler, except in the number of its colonies under cultivation. They did not doubt the possibility of its transformation into the virulent form, although they had not effected this. One observer had attempted to give statistics of the relative death rate from diphtheria in a population of 100,000 in different countries. In England it was 41; Belgium, 44; Spain, 112; America, 140 in every 100,000 of the population, and so on. The death rate in America, as given, was higher than in perhaps any of the other countries.

In the way of prophylaxis, Loeffler gave the following agents as destructive of the bacillus : Corrosive sublimate, 1-10000 or even 1-15000 ; chlorine water, 1-1100 ; thymol, 1-500 ; with 20 per cent. of alcohol added. Loeffler advised that physicians, nurses, etc., gargle with one of these substances every three hours, also to disinfect the face, hands and head, and that clothes worn in the sick room be subjected to disinfection. The use of dry heat and boiling antiseptic water for disinfection of clothing, etc., had been recommended.

Recent observations had confirmed the belief that the schools were largely instrumental in disseminating diphtheria. For disinfecting the sick room the author recommended oil of eucalyptus and carbolic acid, each one ounce ; spirits of turpentine, eight ounces ; add of these mixed, two tablespoonfuls to one quart of water. Put into a broad basin and keep constantly simmering in the room. The vapors, while not unpleasant, were an efficient germicide, and rendered less liable transportation of the disease by the busy physician. This remedy had been praised during the year by another author. It seemed also to render less liable the after-accident of diphtheritic paralysis.

Regarding the pathology, Sylvester was of the opinion that, while many or most of the constitutional symptoms were due to the absorption of the poisonous product of the Klebs-Loeffler bacillus, yet we should not overlook the probability that the symptoms were rendered more or less complex or severe by the products of other germs which might be present.

In diagnosis, bacteriologists considered it of importance to make bacteriological examination ; where the Klebs-Loeffler bacillus was absent, presumably the case was not one of diphtheria ; where present, the diagnosis of diphtheria was positive.

Regarding treatment, in Europe chloride of iron was still largely used. The chlorate of potassium had been abandoned mostly by influential physicians. In France, sodium benzoate was used considerably, and in large

doses as a disinfectant. Loeffler's bacteriological investigations showed that salicylic acid and resorcin were both poor germicides, yet salicylic acid was being used largely in Paris for its supposed germicidal properties. Main reliance had to be placed on early and efficient prophylactic measures and proper local treatment. The number of local remedies used was very large, but an agent which had made rapid way in Canada and the States was peroxide of hydrogen. It had no poisonous properties, was highly cleansing, and disinfected and sterilized the pseudo-membrane, which it gradually dissolved. One professor recommended that when applied to the fauces it be diluted with double the amount of water, and when applied to the nostrils diluted with three or four times the amount of water.

Dr. S. H. Dessau said that he had used the peroxide of hydrogen largely locally, and teaspoonful doses of a solution of 1-3000 of bichloride of mercury internally, and regarded this mode of treatment as the most satisfactory. He used the peroxide of hydrogen in spray. It was coming largely into use among physicians in this city. The solution of bichloride acted as a local antiseptic while being swallowed, and he thought stimulated the liver, enabling this organ to better dispose of the poisonous products of the disease germs. He had also used vapor of eucalyptus, but not that of turpentine, as it was said to have an irritating effect on the kidneys, making nephritic complication more liable.

Dr. M. Putnam Jacobi asked the author how he accounted for the fact that, while he regarded the treatment of diphtheria here as more rational than in Europe, yet in England and Belgium the death rate in 100,000 had been given as about 40, while here it had been given as 140.

Dr. Smith said the statistics quoted yet called for confirmation. It might be diphtheria is more common here.

Infantile pneumonia traversing three dangerous crises (see page 118).—Dr. M. Putnam Jacobi read the history of the case, which contained several points of interest. The child's symptoms seemed to have started with a broncho-

pneumonia, but some hours after its admission to the hospital there were, besides evidence of pneumonia, also signs of empyema, and the latter he thought was due, not to a broncho-pneumonia, but to infectious croupous pneumonia. The physical signs relating to tympanitic resonance connected with the pneumonia, and which were mentioned in German text-books but not in American, were dwelt upon, as were also the severity of the symptoms on different occasions and the therapeutic measures with which they were met. Digitalis was given at one stage and seemed useful, in spite of the position held by some that it caused evil by forcing the blood into the congested lung. The cold pack was used during the highest fever. The empyemic collection of pus was allowed to escape through a drainage tube, but a rib was not excised. The artificial fistulous opening did not heal until a stimulating dressing was applied. The case dated from September, and now the heart had regained its normal position, the lungs had expanded, and the child was well. The heart in this case had been slow to become displaced to the right, owing apparently to previously existing adhesions.

Dr. Henry Koplik said that clinical instructors in Germany were in the habit of calling attention to tympanitic dulness in the second stage of pneumonia, which they accounted for by some air at least remaining in the pulmonary vesicles in addition to the pneumonic exudate. So far as the empyema was concerned, he thought that drainage of the chest from the beginning would save the little one many weeks of suffering, and he favored also resection of at least one rib so as to secure free flow.

Dr. W. H. Thomson mentioned an early diagnostic symptom in pneumonia in children to which he had often called attention, namely, stupor. He had known it to be present as long as two or three days before positive physical signs of croupous pneumonia made themselves manifest.

The author thought resection of a rib was indicated only in the pleurisy of older people in whom the lungs

did not sufficiently expand to fill up the cavity occupied previously by the fluid. He did not think it necessary in order to establish free drainage in children.

Dr. McBurney said his feeling with regard to operating in the empyema of children was not to be in haste, and see what benefit could be derived from repeated aspiration. If an operation were called for he would recommend from the first subperiosteal excision of a portion of a rib, in order to facilitate drainage of the cavity. The drainage would be much more perfect than where simple incision was practiced.

Notes of two cases of appendicitis.—Dr. Egbert H. Grandin reported the cases. They were seen with the late Dr. Little, of Long Island City. It was his desire to learn of the members the time to operate. The first patient, a boy, was first seen by him April 5. Since early in March there had been abdominal pain, chiefly in the right iliac region; later slight induration in this region; March 22 the pain had increased, and on the 25th called for opiates; evening temperature, 102° . When Dr. Grandin saw the boy the facies suggested at once sepsis. Temperature, 101.5° ; abdomen generally tympanitic. While he suspected pus, probably located around the appendix, he did not feel warranted in recommending an operation at that time, and means were taken to move the bowels. The next day they determined on an exploratory incision, choosing the median line for the reason that apparent fluctuation was generalized and not limited to the right. They found on the right an abscess cavity containing about a pint of stinking pus, and on the left one of smaller size. The intervening septum was broken down and the cavity washed out, and then thoroughly tamponed with iodoform gauze. Time was not wasted in searching for the appendix. The right cavity healed in a fortnight; a counter-opening was made in order to induce the left one to heal, and the patient was well at the end of six weeks.

The other case was that of a boy aged seven years, who had a remittent fever, the temperature going up to

103°. There was distinct induration in the right iliac region, with deep seated fluctuation. He advised immediate operation, but the parents refused it at the time. He arranged to meet Dr. Little next morning, prepared to operate, but received word that meanwhile the temperature had fallen to nearly normal, the induration had subsided, and at the expiration of three or four days the child was apparently well and the induration had disappeared. A week afterward the child had a chill; the temperature was rising, being 103°; pulse, 130; general tympanites; pale facies, etc. Dr. Grandin diagnosed rupture and commencing general peritonitis.

He rapidly incised over the appendix, when a whiff of foul gas and purulent pus came out. The patient was in deep collapse and died in ten hours.

To sum up, in the first case an early operation was indicated, but was not done, while a late one saved life; in the second one an early operation was advised but refused, a late one was performed after rupture and the patient died of shock consecutive to the rupture.

Appendicitis; late operation; recovery.—Dr. R. A. Murray related such a case. It occurred in a boy who was in the Catskills during the summer, and the two local physicians attending him were of the opinion that the commencing symptoms were due to an attack of indigestion. There was no chill; no elevation of the temperature except once, and quite temporarily, up to the time of operation; pain no more marked over the right iliac region than elsewhere over the abdomen. Dr. Murray was called over a week after the first attack of supposed indigestion. The patient had been progressively running down; pulse rapid; breathing short; temperature normal; pain not so marked, nor was there much tympanites. When he first saw the boy he was lying on his back; the limbs extended; the face pinched; respiration 40; pulse exceedingly small; abdomen not distended, but boggy to the feel; no greater tenderness on the right than elsewhere over the abdomen; indistinct evidence of fluctuation in the right iliac fossa; no temperature eleva-

tion. The diagnosis was septic peritonitis complicating appendicitis, but consent to an operation could not be obtained of the two physicians until next morning, when the boy's condition was still worse and very critical. The finger then introduced per rectum, determined fluctuation in the right iliac region. Stinking pus was encountered in sacs and also mingled with the coils of intestine which were matted together. The appendix contained a choke-cherry seed, which was taken out, but the appendix was not removed, as it would have prolonged the operation and necessitated tearing up peritonæum. The cavity was washed out ; tamponed with iodoform gauze ; stimulants were used, and after several weeks' careful nursing and treatment the boy recovered.

The speaker thought that in children pus was more likely to form, and to form earlier, than in adults. Chill was less likely ; the facies was apt to be striking in children, especially when sepsis appeared.

Dr. Kiliani had witnessed a good many operations for appendicitis at Volkmann's and Schroeder's clinics, but the results at Hamburg, he said, were not as favorable as they would have been had the cases not so commonly come under the knife late. This complaint, however, was the rule everywhere. After speaking of four forms of appendicitis, he said that in the fourth or cases of relapsing perityphlitis, he thought one should operate when the succeeding attacks were becoming worse in spite of other treatment. Extirpate the appendix at a time when the patient was free from an attack. He had observed that a sweetish odor of the breath foretold a probable fatal termination.

Dr. L. A. Stimson said that the cases reported by Drs. Grandin and Murray, being of the late stage, showed a greater percentage of recoveries from the operation than usual. To feel confidence in the success of the operation it should be undertaken early. Not having seen the disease to any extent except in adults, he asked if the symptoms in children were not different ; whether they were not marked largely by gastric disturbance, obstruc-

tion of the bowels, tympanites, etc., pus not being readily recognized or showing itself only after two or three weeks or giving evidence of local or general peritonitis.

Dr. Stimson favored an operation at once in all cases where one reached a diagnosis of appendicitis. The mortality from this disease without an operation was not less than 20 or 25 per cent., whereas an operation proved fatal if done at a favorable time in not more than one or two per cent. There was a popular prejudice against the knife, but physicians ought to be upon the side of an operation.

Dr. Charles McBurney said, with regard to the time when an operation was indicated, that the answer would vary according to the view taken of these cases by the physician. There were some who held that appendicitis very seldom if ever killed, and they, of course, would consider the time as never having arrived for an operation. There were others who, while recognizing that it was a dangerous disease, had no faith in an operation. Intelligent surgeons, however, had come to recognize appendicitis as not only a dangerous disease, but as one quite amenable to treatment by the knife. He believed the mortality without operation was at least 25 per cent., while from operation it should be much under 10 per cent. There was no necessity for surgeons feeling as modest about recommending an operation as they did three or four years ago.

As to the individual symptoms or class of symptoms indicating an operation, while he felt himself able from experience to say whether in a given case an operation was at a certain time indicated, he yet found it very difficult to tell students just what those symptoms were. Nor did he think this any longer necessary. The question was whether the patient was seriously ill—sufficiently ill to demand important treatment. If the physician felt that the patient was suffering from a serious disease with symptoms pointing to appendicitis, which was likely to go on to the formation of pus or perforation, and which often terminated fatally, an operation should be done. A

positively successful remedy was at hand, one which was attended with very little danger, which fact should be impressed upon the minds of all physicians.

Dr. Grandin said, with regard to a sweetish breath indicating a probably fatal termination, that this was present in other forms of sepsis as well.

Dr. William P. Northrup was elected Chairman for the ensuing year and Dr. F. M. Crandall, Secretary.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Soupault: Diphtheria and Creasote. Preventive Medication for Broncho-Pneumonia occurring after Tracheotomy. (*Rev. des Mal. de l'Enf.*, September, 1891.)

The results of tracheotomy for croup are not satisfactory. Statistics published in France, England, and Germany give only twenty to thirty per cent. of recoveries. Death may come on during the operation or shortly afterward. Those who are operated upon while *in extremis* may die from asphyxia or from syncope. With others, there may be severe hæmorrhage followed by profound and fatal anæmia, the patients being already depressed by diphtheritic intoxication and the dyspnœa which results from complications which occur after the operation, and of such complications broncho-pneumonia is first in importance. This condition may be present before the operation, its presence being unrecognized. Friedländer found it in eighty cases among ninety-four autopsies. In diphtheria which follows whooping-cough and measles, it is a common occurrence. Its presence may be suspected in some cases in which auscultation does not reveal it, especially if there is dulness at some portion of the thorax, if the temperature is high, the respiration rapid and superficial. Tracheotomy in such cases is almost always followed by a fatal result, and many authors believe that operative interference is entirely useless.

Broncho-pneumonia may be absent though imminent. Tracheitis and pseudo-membranous bronchitis may be added to croup. The lesions may not be extensive and the small tubes involved. Tracheotomy may be useful

in such cases. If the false membrane is expelled from the canula, a cure may result. Unfortunately the inflammation frequently spreads after an apparent remission, and the case turns out badly. Hence in such cases the operation should be performed as early as possible. In other cases the entire respiratory tract may be uninvolved by the broncho-pneumonia, the false membrane being arrested at the glottis, and the pulmonary disease developing after the operation. Some authors think that the lung complication is caused entirely by the diphtheritic poisoning, and that the tracheotomy has no effect of this character. Others believe that though the diphtheria has much to do with the development of pneumonia, the active cause is to be sought elsewhere; that the trachea and bronchi may be irritated by the blood which flows into them, and the work is completed by the irritating action of the canula.

Legroux began to use creasote for diphtheria in 1888. Its useful effects upon diseased mucous membrane were manifest enough, and he hoped for good results from its use. In forty-four tracheotomized cases in which he used it there were fourteen recoveries. The author has made use of it in the following formula:

R	Glycerinæ	500 grams.
	Rum	100 "
	Creasoti	10 "

Two teaspoonfuls of this mixture were given, at a dose, to young children, the dose being gradually increased to four teaspoonfuls for children of five years of age and upward. This was readily tolerated. This treatment should be begun as soon as the invasion of the larynx is suspected; in this way broncho-pneumonia may be avoided. It is desirable in all cases in which tracheotomy has been performed to cover the opening of the canula with a small pledget of absorbent cotton, moistened, from the following mixture:

R	Glycerinæ	20 grams.
	Alcohol	10 "
	Creasoti	1 "

Of forty-five tracheotomized patients treated in this way twenty-one recovered. In several of those who recovered there was rapid fall of the temperature after the operation; the general condition was good, and nourishment was readily taken. The canula was removed on the third day. In others, the temperature rose, and nourishment was not readily taken. In all the cases in which there

was recovery the operation was easy and rapid, and the hæmorrhage slight. The percentage of recoveries was satisfactory; still more extensive experience is necessary in order to determine whether creasote is, or is not, of general utility. The treatment was not efficacious in those cases in which broncho-pneumonia was present before the operation.

Mayer: Treatment of Diphtheritic Angina with Ice. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

The treatment of diphtheria with ice, which was recommended by A. Jacobi, has not generally been methodically carried out. Combined with the internal use of chlorate of potash, the author has employed it in more than a hundred cases since 1874, and has always succeeded in producing a cure. During the whole period of the disease the neck should be surrounded with an ice-bag large enough to cover it, and the sub-maxillary region as well. The child should be allowed to drink ice-water frequently through a tube, and pieces of ice should also be placed in the mouth at frequent intervals. During the night, the ice should be given every ten or fifteen minutes. From two to four grams of chlorate of potash should be given daily in a 1.60 solution. A coffee-spoonful should be given every two hours. If this treatment is carefully carried out, it will always succeed. Erckelens, by this method of treatment, has saved all but one of six hundred cases of diphtheria. Thomas has lost three out of two hundred; Johnen, seven out of one hundred and seventy-seven.

Phocas: Treatment of Prolapse of the Rectum in Children. (*Jour. de Méd.*, September 20, 1891.)

This accident is of frequent occurrence in children as well as in adults, and in the former, it is usually a curable condition. All therapeutic methods which are used to relieve prolapse of the rectum relate either to the tumor itself or to its place of exit, that is to the sphincter ani. The prolapsed tumor may be treated by rest, the bowels being constipated for that purpose and especial care taken when defæcation occurs, or one may use astringents, caustics, the thermo-cautery, or the tumor may be excised, or it may be fixed by sutures in the pelvis, or, finally, it may be reduced by Jeannel's method. Bandages may be applied so as to bear against the sphincter ani, the tumor having first been reduced, electricity may be applied, or injections made of strychnia or ergotine,

or the radiating fibres of the muscle may be excised. Guersant narrows the opening by touching the mucous membrane of the rectum with the actual cautery. With children, the milder methods should first be tried. If these fail, one may apply nitric acid to the prolapsed portion, reduce it, and hold it in place with a bandage for four or five days. Cauterization with the actual cautery is a method which has given satisfaction to the author, and he has seen no bad results from this method.

Flesch: Etiology and Prophylaxis of Tuberculosis in Children. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

The author admits the possibility of direct contagion in children, but he has never seen such a case. On the other hand, contagion by means of the milk of tuberculous cows is an assured fact. With regard to tubercular heredity, no one has ever found tubercle in the placenta nor in the fœtus. The work of Queryrat, in this connection, is based upon a single case. During fifty-one years the author has seen but nine cases which could be considered cases of hereditary phthisis and in which cavities were found in the lungs during the first months of life. That there may be a general predisposition to the disease is admitted. The most important lesions which precede tuberculosis in children are: (1) Hypertrophy and suppuration of the bronchial glands after measles and scarlet fever; (2) lobular pneumonia, which is almost always complicated with glandular lesions; (3) fungous inflammations of the bones and joints.

Tuberculosis in children is almost always secondary to local inflammation, suppuration or caries. Thomas has stated that cavities in the lungs are not uncommon in children on account of their habit of touching everything which comes in their way, and frequently putting their soiled fingers in their mouths, thus affording an avenue for infectious disease, including tuberculosis.

Happe believed that tuberculosis was often acquired and developed after measles, scarlet fever, or whooping-cough. Almost all individuals from fifteen to twenty years of age, who die from tuberculosis, have suffered with measles or scorbutus.

II.—MEDICINE.

Poole : A Case of Cerebellar Tumor. (*The Lancet*, September 19, 1891.)

The following case may have some physiological interest:

The patient, aged four years, was admitted with headache, vomiting, and loss of use of lower limbs.

The father is healthy, but the mother suffers from occasional convulsive attacks, especially during pregnancy and childbirth. Three of the children died of "fits," and three are healthy. The patient had a "fit" nineteen months ago. Nine months ago she had two, which were accompanied by bleeding from the mouth, and at this time it was noticed she began to lose the power of walking, which gradually got worse.

The temperature is normal. She is well nourished and muscular, and has a heavy, sheepish and expressionless aspect. The upper incisor teeth are small and placed apart. The canines of the same row are small triangular bodies. The lower front row of teeth are small, crowded together, and free from notches.

Nervous System.—Sensations are much impaired. A hot test-tube is borne well when placed in contact with the skin of the legs and arms.

Running a pin into the skin to a moderate depth is borne without pain. But when thrust in far enough to cause bleeding, she feels it, and makes a fair attempt to localize it.

The pupils are natural and react to light. The senses of taste and smell are affected.

Touching the conjunctiva causes closure of the eyelids, but occasions little discomfort.

The knee-jerk is, if anything, slightly pronounced.

She sits up in bed with the body bent forward, and if pushed to one side she falls backward and either to the right or left. She can just manage to stand in bed by taking hold of both sides of the cot, though she does this in a very oscillating manner. Closing the eyes affects neither sitting nor standing. She can turn over the leaves of a book and touch the tip of her nose without special effort. With the exception of coldness of the lower limbs there are now no vaso-motor or trophic changes to be detected. Sleep is often prolonged and deep, and her intelligence is good.

She stands (with assistance) with the legs separated, feet everted, knee-joints extended, and the spine bent forward. When assisted to walk, the lower limbs, being

adducted and rotated outward, are thrown forward and outward without flexion of the knees; and the plantar aspects of the feet rather than the heels, come down to the ground with a thud.

During her stay in the infirmary the attacks of headache diminished in frequency and severity, and the vomiting ceased, while the general anæsthesia and loss of power of the lower limbs gradually increased until the time of her death, two hours before which she was unconscious, but previously to the onset of unconsciousness, there was nothing whatever to indicate the sudden termination of illness.

At the post-mortem examination the lateral ventricles were found distended with fluid.

Projecting from the under surface of the cerebellum and pressing upon the medulla oblongata was a rounded, smooth-surfaced and hardish (in comparison with the brain-substance) tumor about the size of a walnut. No microscopic examination was made, owing to the tumor being hopelessly disintegrated by a fluid into which it had been erroneously placed with the intention of hardening.

Bowie: Case of Diphtheria or Croup in Central Africa. (*The Lancet*, September 19, 1891.)

The following case occurred thousands of miles away from any possibility of infection, and is of interest in regard to the unity or duality of diphtheria and croup:

The patient was a Scotch boy, aged three years, who had been two years in Africa. The boy had been exposed to a heavy rain; then lived a fortnight in a brick house that had been uninhabited a year and without a fire being lighted.

Toward the end of the second week the boy developed a common cold, with slight bronchitis and laryngitis. On the third day there was a small patch of membrane on the right tonsil. There was also difficulty of breathing and a whispering voice. There was no improvement in breathing; and, although the symptoms were not urgent, tracheotomy was performed.

Gradually the dyspnœa returned and increased, and the child died, choked, on the morning of the fourth day after operation.

Post-mortem examination showed marked œdema of the larynx, which was everywhere lined with a very distinct false membrane, which stripped off readily in small pieces, showing no ulcerated surface below. Patches of similar membrane were found in the trachea and in the

bronchi down to the third or fourth division. Several of the bronchi were plugged by masses, supposed to be inspissated secretion and altered membrane.

Remarks.—If we look upon this case as one of diphtheria, and if we accept the common teaching that diphtheria is due to a specific contagium, then it is one of considerable interest, from the impossibility of tracing any such source of contagium, and from the extreme improbability of there being any such source. For it is not known to the author that diphtheria has been found among a people living in the healthy and primitive manner that they do in Africa, where there are no wells to become contaminated, no drains to go wrong, no accumulation of excrement around the dwelling, where no house is more than two or three years old, where, whenever a death occurs in a house, that house is burned to the ground.

Several doctors in Africa say that they have never seen a case. No possibility could attach to the house where the patient was, for it is a new one.

The drinking-water is from a large mountain stream, and could not become contaminated.

If the diphtheritic reaction may be caused by several micro-organisms, this case is not so difficult of explanation, especially as the house in which the patient stayed must have been exceedingly damp, and thousands of spores of various fungi and other low organisms would be floating about in the air. During the rainy season it is most difficult, even by large fires, to keep down the mold and fungi. During the rainy season the house in which the patient was had no fires, and the mold and fungi had it all their own way.

It may be that the African is not very susceptible to the diphtheritic virus. Perhaps the boy had a local disposition to diphtheria.

The boy had a tendency to catarrh, and was suffering from it when diphtheria developed.

The original article is especially interesting.

Ogston: Tubercular Myositis. (*The Lancet*, August 22, 1891.)

It is unusual to meet with a tubercular affection of a muscle to the extent described in this case. The disease was probably a secondary process.

The patient, aged six years, was admitted with symptoms of caries of the right tarsus. Two years previously the foot was run over by a cart-wheel, and apparently recovered. Six months ago the dorsum-pedis began to

swell, and continued to do so till about six weeks before admission, when an incision was made and a quantity of pus evacuated.

There was a spindle-shaped enlargement of the dorsum of the foot, extending from the ankle to the toes. At the anterior part was a small sinus. The movement of the ankle and toes was painless. The family history was unimportant.

The sinus was opened and scraped out. On passing in a probe, it ran upward under the skin of the front of the leg for about five inches, along what at first seemed a tendon sheath. This tract was opened with scissors in its whole extent, and showed a yellow, cheesy mass running up the centre of the muscular-belly of the extensor longus digitorum as high as the muscle. This mass was scraped out and the wound sutured up, except at its lower end, and drained with catgut strands.

Recovery was uninterrupted. Four days after operation the upper part of the wound, which had been sutured, had healed by first intention. The lower part granulated up, and was nearly healed in five weeks. The movements of the foot were almost perfect.

Simon : Tuberculous Meningitis. (*Journal de Médecine*, September 27, 1891.)

Inflammations of the meninges are divisible into two great groups: those which are of traumatic and those which are of microbic origin; the latter being subdivided into those which are caused by cocci and those which are caused by bacilli. Such a classification enables one to include those cases which occur in connection with typhoid fever, pneumonia, and chronic lesions of the nose, ear, and eye. The author proposes in this paper to describe only that form of meningitis which is caused by the bacillus of Koch. The varying conditions of the nervous system admit of its appearance in various forms, which may be called regular and irregular. In the regular form there are always numerous prodromata, including pains in the head, temples, and nucha; the speech is slow, the memory poor, the hearing that of indifference. The sleep is disturbed, also the sight, and there may be diplopia. The digestive and nutritive functions are deranged, the appetite being diminished or perverted, and constipation alternating, with diarrhœa. There may be emaciation, especially of the limbs, the child prefers to remain quiet, and there may be more or less fever. This period may last eight to fifteen days, after which the child is obliged to take his

bed, and remain there, the disease progressing to a fatal issue through three stages, the first being that of excitation, the second that of detention, and the third that of collapse. But it is not always easy to distinguish these stages. In the period of excitation frontal or occipital headache is present, especially at night; also moaning and crying, which has been called *hydrencephalic*. There is much irritability, loss of memory, insomnia; or if sleep comes it is not restful. The *decubitus* is dorsal or lateral; the legs are flexed, and there is constant jactitation. There is cutaneous and muscular hyperæsthesia, photophobia, diplopia, amblyopia; the pupils are immobile and unequal; there may be strabismus, and the hearing may be abnormally acute. The face may be red or pallid, and wears an expression of pain. The tongue is coated, the appetite absent, and nausea and vomiting are present—the vomiting being involuntary. The capillaries of the skin are paralyzed. There is marked irregularity of the respiration and of the pulse. The temperature also shows marked variations, which do not correspond with the pulse. This period continues eight to fifteen days. The second stage lasts only three or four days; and one is often deceived by an apparent improvement in the condition. It is marked by contractures on one side or the other. The temperature is low, and there are sixty to eighty pulse-beats per minute. There is Cheyne-Stokes respiration, somnolence, convergent strabismus, and then collapse, and convulsions. The period of collapse lasts two or three days, and is followed by death.

In the irregular forms of the disease the prodromal symptoms may be unimportant, or there may be but a single group of symptoms. In some cases the prodromal symptoms may continue with varying intensity for several months. There may be periods in which health seems quite restored. In other cases the prodromal period may last only two or three days, or no prodromal symptoms at all may be apparent, especially in cases in which there is an antecedent history of tuberculosis, whether thoracic, abdominal, or osseous.

In children ten or twelve years of age the symptoms resemble those of traumatic sub-acute meningitis. There may be symptoms suggestive of typhoid fever, with violent delirium, nightmare, and hallucinations. But in all cases the issue is almost inevitably a fatal one.

Ollivier: False Tuberculous Meningitis of Hysterical Character in Children. (*Gazette Médicale de Paris*, September 26, 1891.)

In the literature of the subject of tuberculous meningitis, quite a number of cases are reported to have been cured. Considering the serious character of the disease it must be somewhat doubtful whether these were cases of true meningitis. Still it is not denied that cases have occasionally been cured since the cases have been reported by writers whose diagnostic ability is undoubted. It is believed, however, that in some of the cases errors of diagnosis were made, the cases presenting symptoms which were quite similar to those which appear in true meningitis. Such conditions as dentition, constipation, tænia, insolation, syphilis, and typhoid fever have probably been mistaken, at times for tubercular meningitis.

The author wishes to call attention to a form of false meningitis which is little spoken of by writers upon the diseases of children, and which may be definitely diagnosed. The following case will serve as an illustration of the condition referred to: The patient was six years of age, who had been sick eight or ten days when seen by the author. Her father had died of pulmonary phthisis, and she was weak and emaciated. She complained of pain in the head, and constipation, and was drowsy, and irritable. There were also photophobia, cutaneous hyperæsthesia, grinding of the teeth, and "boat belly". The pulse was slow and irregular; there was mydriasis, and also nystagmus. She had spells of moaning and crying, convulsive movements of the limbs, nocturnal delirium, and finally passed into a condition of coma. These symptoms, together with paralysis, continued twelve days. The treatment consisted in applications of ice to the head, mercurial inunctions, subcutaneous injections of ergotine, blisters to the nucha and the scalp, purgatives and iodide of potash in large doses. This treatment proved efficacious, and the patient gradually improved. In six weeks she was well enough to leave her home and go to the country. This was considered by the author an undoubted case of tubercular meningitis which had been cured. She was not seen again for seven years. During this period she had remained constantly in the country, menstruation had not been established, though she appeared strong and well, if always nervous, sensitive, and at times irritable. Her sleep was frequently disturbed by bad dreams. She occasionally had attacks of intercostal neuralgia and rhachial-

gia. The pharyngeal reflex was diminished. She was sufficiently intelligent, and had the appearance rather of a possible sufferer from hysteria than from epilepsy. Her mother had suffered from convulsions in childhood, and her maternal grandfather from chronic alcoholism. In the light of these facts the question arose whether the sickness of the child seven years previously was caused by tubercular inflammation of the cerebral membranes or by hysteria which assumed the appearance of meningitis. The author is inclined to accept the latter hypothesis, and supports his opinion by the narration of a case reported by Seeligmüller, in which analogous hysterical phenomena were observed, though the seat of the lesion was referred to the membranes of the spinal cord and not to those of the brain. In conclusion the author advises that before one decides that a severe affection of the brain or the spinal cord, which has the appearance of tubercular meningitis, is really cured, whether in the person of a child or an adult, he should eliminate spurious forms of meningitis of every character, especially those which are hysterical, which have heretofore received insufficient attention.

Seiffert: Etiology of Acute Digestive Troubles in Nursing Children. (*Rev. Mens. des Mal. de l'Enf.*, October, 1891.)

The question is proposed whether in acute dyspepsia in nursing-children, the contents of the stomach contain more micro-organisms than in the normal condition, and whether the intensity of the dyspepsia bears a relation to the number of such micro-organisms. Investigations were made upon twenty-two children suffering with dyspepsia in varying degree, in the following manner. The contents of the stomach were carefully removed with a sterilized stomach-tube, and divided into two parts; one was planted upon gelatine, and the number of colonies of microbes counted; the other was examined with reference to the presence of free hydrochloric acid. In the first series, including two cases of mild dyspepsia, there were 1,750,000 germs in the entire contents of the stomach in place of 241,000, which Van Puteren believed was the proper number in well-nourished children. In the second series, including twelve cases of acute dyspepsia, there were 25.3 to 100.2 germs per cubic centimetre of the contents of the stomach. In a third series of five cases in which the dyspepsia was of long duration, the number was 84.3 to 1,380 per cubic centimetre. In a fourth series, including two cases of infantile cholera, there were 84.24 to 18,616 per

cubic centimetre. In order to see whether this quantity of micro-organisms was due to the loss of microbicide properties in the gastric-juice, the following experiments were made: The contents of the stomach removed in the ordinary way were filtered upon paper and then upon porcelain. To the gastric-juice thus deprived of germs bouillon was added, and to this were added cultures of cholera, typhoid fever, and anthrax. The enumeration of the cultures, made at intervals of an hour, showed progressive diminution of the culture, which proved that the gastric-juice had preserved its bactericidal properties. From these experiments it was concluded that in dyspepsia there is a poisoning by the products of saprophytic micro-organisms which offer great resistance to the gastric-juice.

III.—SURGERY.

Kingsford: Cancrum Oris. (*The Lancet*, September 12, 1891.)

In *The Lancet*, of May 4, 1891, the author, in conjunction with Dr. Gates, reported the cases of cancrum oris successfully treated by the local application of corrosive sublimate. The author places on record a fourth case in which the treatment proved unsuccessful.

The child, a boy, aged four years, was admitted, suffering from proptosis of the right-eye and intense swelling of the cheek and eyelids on the same side. The child had been suffering for three weeks from swelling of the cheek, ulceration inside of the mouth and free salivation. The boy had always been in excellent health.

On admission the child was not depressed and did not seem to be in pain. There was some necrosis of the jaw where the molars had been extracted. The necrosed bone was removed, pus evacuated, and the eye, being hopelessly diseased, was removed.

The next day the temperature was 102°; but the child was bright, and took his food well.

On the second day a gangrenous patch appeared at the outer canthus. On the following day gangrene was noticed in the centre of the lower eyelid. The drainage tube was removed and the orbital cavity well swabbed out with perchloride of mercury, 1-500, containing some glycerine and lint, soaked in the same, used as a dressing.

The gangrene now extended with frightful rapidity,

notwithstanding that the parts were kept constantly soaked with the lotion, and that the strength of this was increased to 1-200.

The patient did not suffer any pain, and permitted the removal of dressings and sloughs without resistance. As the mercury was having no good effect, a lotion of chloride of zinc (eighty grains to one ounce) was used instead.

He died on the eighth day after admission. The whole of the right side of the face had disappeared, the cavity extending from just in front of the ear to beyond the bridge of the nose, and from the upper margin of the orbit to half an inch below the angle of the mouth, the commissure of the lips, however, being left intact. The floor of this cavity opened into the nose and mouth. Most of the superior maxilla had disappeared, and the inferior was partially exposed.

Remarks.—This case originated probably as an ulcerative stomatitis, followed by necrosis of the upper jaw, and typical nomatous gangrene.

No signs of the latter were present till thirty-six hours after the operation. The mercurial treatment had no effect whatever in checking the disease, although in three other cases in which the author tried it, its effect had been most marked within twelve hours.

This may be accounted for by the fact that the deeper structures were already thoroughly permeated by the virus, whatever it may be.

The author doubts if fuming nitric acid could have been adequately used, and is sure that the actual cautery could not, because of the large surface of bare bone in the original cavity. The case is remarkable, in that there had been no previous debilitating disease, and the boy was apparently in very good health.

Constitutional symptoms, except rise of temperature, were absent till within thirty-six hours of death, when diarrhoea set in.

Light: Two Cases of Pulsating Empyema. (*The Lancet*, September 26, 1891.)

CASE I.—Aged four years. Family history good. Illness began four months previously with whooping-cough, which lasted three months.

A month later bulging of the chest was noticed. About two weeks before admission the mother noticed a

localized swelling on the left side between the ribs, which soon became red and rather glazed.

On admission, breathing was 56; pulse 140; temperature 100.2° axilla; chest, right side, $11\frac{1}{4}$ inches; left $12\frac{3}{4}$ inches, at a level one inch below the nipples. There were two distinct localized swellings on the left side.

There was a pulsation in both these swellings, synchronous with the cardiac impulse and systolic in time.

The subcutaneous veins were considerably dilated.

Percussion: entire lung dull. Breath sounds absent over base; feeble over upper part of lung; vocal resonance and fremitus absent. Heart was pushed over to right of middle line of sternum.

Pleurotomy was performed under chloroform; thirty ounces of pus were evacuated. He got up on the seventeenth day after operation.

The wound healed, leaving no fistula. About five months after operation both sides of the chest were equal. The breath sounds were heard well over all the left side, and the child seemed in perfect health.

CASE II.—Aged three years. Child had always enjoyed good health previously. The mother died of consumption a short time ago. Present illness began five weeks ago with pneumonia.

On admission, temperature was 100.6° ; pulse 152; respiration 36. Skin waxy in color; hectic flush on left cheek.

Chest, right side, $10\frac{1}{2}$ in.; left side 11 in. at level of nipple. Below this there was one inch difference. Left side presented two distinct swellings. One over præcordium, the other over the eighth interspace in mid-axillary line, which was red, glazed and fluctuating. This latter swelling pulsated visibly, synchronous with the cardiac impulse, and systolic in time; it could also be felt and heard distinctly. All the signs of fluid in left pleural cavity. Heart displaced entirely to right of middle line of sternum. Pleurotomy was performed, and twenty-five ounces of pus withdrawn. The temperature fell to normal and remained so for three days. The child died on the thirteenth day after operation.

Necropsy.—Brain and membranes healthy. Heart in the normal situation. Right lung expanded. Left lung small and collapsed. No pus visible. Left lung weighed six and one-half ounces. On section, it showed white fibrous bands running throughout the substance; no sign of tubercle in either lung. Peritonæum showed sign of

recent inflammation. Intestines were adherent together, but easily separable. No evidence of any communication between the empyema and peritoneal cavity.

Remarks.—Pulsating empyemata are probably not as rare as generally imagined, although but few cases have been reported.

There are two recognized groups: (1) intra-pleural pulsating pleurisy; and (2) the pulsating empyema necessitalis, in which there is an external pulsating tumor—these examples fall under the latter heading.

The signs peculiar to this trouble are the following: A localized subcutaneous swelling, or swelling communicating with the pleural cavity, with systolic pulsations synchronous with the cardiac impulse, which may be well-marked, energetic or weak, usually situated anteriorly between the sternum and axillary line, though found occasionally laterally or posteriorly; an extensive purulent effusion into the pleural cavity, nearly always left-sided. On palpating the swelling, the systolic impulse is easily felt, sometimes more strongly than the cardiac, the pulsation also receding during inspiration and projecting during expiration. On auscultating at the level of the pulsations, one can hear both heart sounds distinctly. Excessive displacement of the heart and rotation on its axis. Such are the most salient features.

With regard to the necropsy, the following are almost classical features of this lesion: In place of the left lung is an immense cavity, with a pleura devoid of adhesions, and either containing pus or not. The parietal pleura is covered with a layer of pyogenic membrane; the intercostal spaces are stretched and dilated in certain places. The left lung lies against the mediastinum from apex to base, and adherent to the left lateral surface of the pericardium. It is impossible to detach the lung from the pericardium, the adhesions are solid, also behind to the vertebral column, and above to the upper ribs. The lung is the seat of an interstitial pneumonia—a pulmonary sclerosis. The external tumors have fistulous communications with a sinus more or less long, which unites them to the principal cavity. The explanation of these pulsations which the author enters into more fully depends upon many circumstances. The heart is displaced to the right and in contracting reacts against this compression, pushing back more or less strongly that part of the pleura which is ultimately adherent to the pericardium.

The liquid effusion must possess a certain tension ; and in order that the impulse communicated to all the surface of an empyæma may become appreciable to the exterior, it is necessary that there should exist a point of less resistance. The prognosis is generally graver than that of the more ordinary forms of empyema.

O'Neill: The Radical Cure of Hernia in Children.
(*Rev. Mens. des Mal. de l'Enf.*, October, 1891.)

The cases of hernia in children in which operations are indicated are as follows :

1. Cases in which the parents are poor and cannot buy a truss or attend to its application. 2. Cases in which the hernia is large and cannot be sustained by a truss. 3. Cases in which a truss has been worn twelve months without diminution of the hernia. 4. Those in which the individuals are to become laboring people. 5. Those in which unsuccessful operations have already been performed.

The method of operating will vary with the condition. If the sac is congenital and can be isolated, Macewen's method is the best. If the sac has been torn and cannot easily be remedied by sutures Bank's method is preferable, the sac being tied at the neck and removed a centimetre above the ligature, the upper part of the remainder of the sac is then stitched to the abdominal muscles below the internal ring. Or Barker's method may be employed, the sac being tied in two parts and cut between the ligatures, the upper part is to be sutured to the abdominal muscles and the lower retained in the scrotum. Or Ball's method may be used by which the sac is twisted several times before its ligation at the top of the neck. All antiseptic precautions must be used and the wound drained. In three cases which were narrated there had been no return of the hernia two years after the operation.

Hofheimer: Glandular Abscesses in Young Children.
(*Anales de Gin. Obst. et Ped.*, July, 1891.)

The cause of this common affection in children may be a peculiar diathesis or infection from without, the latter being the more important cause. The neck is the situation which is most common for the condition in question. Treves observed it in this situation in one hundred and thirty-one out of one hundred and fifty-five cases. Van Arsdale observed it in this situation in seventy-seven per cent. of five hundred and fifty-five cases. Henoch has

shown that suppurative conditions of this character are most frequent in the early years of childhood, and the younger the child the more numerous the abscesses. He believes that there is such a condition as a suppurative diathesis. Bouchut ascribes frequent suppurations to three forms of diathesis, the puerperal, the scrofulous and the syphilitic, the first referring to children who are nursed by mothers suffering from puerperal disease. Escherich believes that the staphylococcus aureus and staphylococcus albus are constantly present in the liver of nursing children, and that these pyogenic germs are the cause of the suppurations from which they so frequently suffer. Wood believes that there is a glandular constitution or temperament just as there is a muscular or nervous one. Legroux describes in connection with the polyadenopathies the infarct of the lymphatic glands which is so frequently observed in the necks of children. They are seen in children of scrofulous tendencies, or they may be due to dentition or to the lymphatic condition. Daremberg has observed specific polyadenopathy in connection with septic amygdalitis, and adds that amygdalitis may occur with children who are much in contact with syphilitic fathers. Some authors ascribe the frequency of cervical adenitis in children to erosions of the mucous membrane of the mouth. Jacobi thinks that microbes may obtain an entrance to the body by way of the lips and thus lead to cervical adenitis. Dumesnil thinks that as the glands of the neck are in communication with the lymphatics of the mouth, nose and pharynx they are exposed to many media of infection from the air. As to treatment, local applications of an ointment of equal parts of iodine and belladonna are recommended. With this may be combined internal medication with iodide of iron and hypophosphites, also cod-liver oil. Local applications may also be made with nitrate of silver, also with a solution containing one part of tincture of lobelia and three of water. If resolution does not take place the glands should be deeply incised.

Peterson: Congenital Wry-neck. (*Zeitschrift f. Orthöpädische Chir.*, I., 1.)

1. There is no authentic instance in the literature of the subject of the occurrence of wry-neck from a rupture of the muscular tissue which has occurred during labor.

2. Clinical experience in relation to the consequences of rupture of muscular tissue, as well as the negative re-

sults obtained by experiments upon animals testify against such a possible cause.

3. That shortening of the structures which produce wry-neck may occur during foetal life has been demonstrated.

4. Clinical observation and experiments upon animals show that continued contact of the points of origin and attachment of a growing muscle will produce shortening.

5. The intra-uterine origin, the frequent occurrence upon the right side, of wry-neck, and its frequent occurrence in connection with breech presentations and difficult labors show that it is due to an abnormal condition of the amnion.

6. Stromeier's teaching that wry-neck is of traumatic origin is no longer tenable.

7. Congenital wry-neck is never to be charged to the fault of the accoucheur or the midwife.

Macdonald: A Case of Myositis Ossificous. (*British Medical Journal*, August 29, 1891.)

The patient was a girl four years of age. She was perfectly well until two years of age, when lump appeared on the side of the neck, which was opened, but no pus appeared. This was followed by other growths upon the head, neck, and back, which after a time would gradually disappear. The general health did not suffer. There was nothing of importance in the family history.

Recently the neck had become stiff and the arms were becoming fixed to the side. On examination the elbows could be moved but eight inches from the side, because of the semi-ossified condition of the muscles above the shoulder, especially the tendons of the *teres major*, and *latissimus dorsi*. The muscles of the neck were also becoming ossified, the *sterno-mastoid*, *trapezius*, *stylo-hyoid*, *omo-hyoid*, and *sterno-hyoid* being affected.

The *sterno-mastoid* on the left side felt like an iron rod stretching from the ear to the sternum. Nodes were seen on the left frontal eminence, on various other parts of the hand, on the *scapulæ* and *vertebræ*.

Vigorous treatment by iodide of potash produced no result unless to cause the disappearance of the nodes on the head.

Considerable bone was removed by operation from the tendon of the *teres-major* muscle, but without giving relief.

The occurrence of nodes, their disappearance and reappearance gives some color to the idea that there

may have been some syphilitic taint. Nothing, however, could be detected in parents or patient to warrant such a conclusion. There was not even a suspicion of rheumatism. The author is entirely unable to give any explanation for the condition.

Simon: Premonitory Accidents of Typhlitis, Perityphlitis and Appendicitis. (*Rev. Mens. des Mal. de l'Enf.*, October 1891.)

Perforation of the appendix and the suppuration which results therefrom is always preceded in children, by a long premonitory period. In the first phase of this period constipation may be the principal or only trouble, the faecal matter is hard and surrounded with glairy substance. The region of the cæcum is tense and slightly painful, becoming supple after an evacuation. This condition may last for months with no other associated trouble except loss of appetite. The second phase corresponds to the appearance of painful symptoms and the sub-acute inflammation of the cæcum. The pain may not be acute but is in many cases sufficiently troublesome to prevent walking, and causes the child to assume an attitude which is suggestive of coxalgia. The digestive troubles consist in diminution of the appetite, eructations, etc. The reflex troubles include headache, melancholy, intellectual apathy, sensitiveness to cold, chilliness of the extremities. In some cases the emaciation and general appearance of the patient, together with the abdominal pain are suggestive of tubercular peritonitis. Then follow appendicitis and perityphlitis suddenly or progressively, but it is strongly insisted upon by the author that the appendicitis is not primary but secondary to the engorgement and inflammation of the cæcum.

The diagnosis is often difficult because the child and his surroundings suggest only cerebral or digestive trouble.

The treatment is first of all dietetic, indigestible food should be avoided, meat and vegetables must be fresh and well cooked. Hearty eating at night is especially to be avoided. From time to time mild purgatives should be administered, perhaps oil of sweet almonds with castor oil, syrup of rhubarb, mild mineral waters, tincture of nuxvomica, also massage and baths should be used sufficiently often.

Bibliography.

THE MOTHER'S HAND-BOOK ; A PRACTICAL TREATISE ON THE MANAGEMENT OF CHILDREN IN HEALTH AND DISEASE. By Levin J. Woolen, M.D. Everett Waddey Co., Publishers and Printers, 1891.

This is a book of 419 pages, and for a "hand-book" is too bulky. Written by a reputable physician, one has the right to expect a book which may be of service in an emergency to those who live at a considerable distance from a physician. Such a book should be correct in its statements, should not contain advice which might do harm, or which will tend to dispend with the services of the family physician. So many medical family guide-books have done harm to physicians and families, that when another one is presented it is well to scan it closely, and this we have done with the one before us. So frequently does the author enter into the details of the history and treatment of diseases, that one might reasonably suppose that the book was intended to be a medical treatise, and fifty-four pages are devoted to an "appendix containing articles on diseases and accidents that may suddenly happen to *grown* persons"—rather out of place in a book devoted to the management of children.

The chapters treat of the influences surrounding the child before birth, of labor, of the treatment of the child soon after birth, of teething, feeding, weaning—the various ailments of childhood, of accidents and injuries, of medicines and miscellaneous subjects. Many of the suggestions made are excellent, but just at the time when the medical reader expects to read, "send for the physician," the directions given are for home treatment. And when home treatment might answer, the mother is urged to have a physician.

On page 67, the author, in speaking of the care of premature infants, mentions the hatching-cradle of France, and tells of an extreme case in which he put the infant, thoroughly wrapped in flannel, into the oven of a cooking-stove, the heat being kept at 77°. While touching upon the importance of intelligence in regulating this operation, he leads mothers to believe that they are competent to try so dangerous an experiment.

On page 69, he leaves it to be inferred that if mothers cannot get a feeble child to swallow milk, they may feed it through a stomach tube.

On page 71, the operation for hare-lip is dwelt upon, and, on page 85, white-lead paint is suggested as a topical remedy in erysipelas.

The author forgets that Jacobi and other authorities have concluded that dentition by itself is seldom a cause of deterioration of health, but boldly brings forth the old idea that "the process of dentition is attended with danger to the child," and so devotes a long chapter to dentition. Nor can we agree with the direction in lancing the gums—to "insert the point of a dull knife-blade into the incision on each side and press the gum from the tooth." In the feeding of children the "one cow's" milk fallacy has been advocated and proprietary foods are strongly recommended, and how can "persons living in the country, far away from drug stores where infant foods are sold," obtain *fresh* cream crackers as a substitute?

One of the real advances that has been made in the care of children is teaching them to hold down their own tongues with their own fingers when the throat is to be examined, and dispensing with the hand of a spoon. But the author fails to tell mothers of this procedure.

The article on diseases of the mouth, throat, etc., is on the whole excellent, but the mother is told not to allow the child, as it grows older, to be out of doors without its head covered, as inflammation of the brain may follow such imprudence. It is not expected of a hand-book to detail the pathological conditions found in pneumonia and pleurisy, and should the average mother use leeches in a *plethoric* case?

Why should a mother have to deal with such terms as ileo-colitis in the otherwise good chapter on diseases of the stomach and bowels?

Elegant pharmacy does not enter into the author's book, and quinine does its bitter work. What does a mother know of the phrenic nerve?

The chapters on eruptive and constitutional diseases are excellent.

But all through the book is the advocacy of a little calomel, of a little this, a little that; laudanum, Godfrey's cordial and other opiates are too frequently recommended. Accuracy in dosage is infrequent.

It is a pity that an author who has accumulated so much good material by reading and experience should have spread it out over so much space, and that he should have mingled with it so much which does not belong to a hand-book.

J. W.

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MANIFESTATIONS OF "LA GRIPPE" IN CHILDREN.*

BY CHAS. WARRINGTON EARLE, M.D.,

Chicago.

WHEN the history of the present epidemic (1891-'92) is written, three consecutive yearly visitations of La Grippe will have been recorded. The occurrence of this disease with such frequency, may in my judgment be considered, and spoken of as a national calamity. The troubles, anxieties and deaths among our families—in addition to the increased labor which nearly prostrated our profession, and in many cases was the direct cause of death of some of its members—to say nothing of the sequelæ which have followed and which will continue to follow, all unite to make it an epidemic much to be dreaded.

The disease "*La Grippe*" or influenza, has been fully recognized since the sixteenth century.† Inasmuch as it has been described in our own country for nearly two hundred and fifty years it is a matter of surprise that the literature is not more exhaustive, especially in our standard works.

*Read in abstract by Dr. A. Seibert before the American Pediatric Society, Washington, D. C., September 25, 1891.

† The first epidemic in America, according to Webster, took place in 1647.

Wilson in his treatise on "*Continued Fevers*," has an excellent article on *La Grippe*, but says in regard to some epidemics that children remain relatively exempt from its seizures.

This may be true of some epidemics, but it certainly was not the case, during the winter and spring of 1890, and 1891 (nor thus far in 1892) children having suffered to a very great degree.

At the commencement I may say that I am at a loss to account for the paucity of facts which the average practitioner seems now able to offer in regard to the cases so recently under his observation. Many of the details, even the number of cases and the more striking of the constant phenomena, have, seemingly, been lightly impressed upon many of us. And yet I know, and will allow for this largely from the fact that we were so busy that it was absolutely impossible to keep the records which we ordinarily do. That close observation and fine systematization which is permitted by leisure moments—moments of calm thought—does not come with times of intense mental and physical stress—almost exhaustion.

General Considerations.—This disease is, without doubt, a general infection of the entire body. It takes possession of the system with great rapidity, indeed it has been called by some writers "lightning catarrh." It involves not only the respiratory tract and digestive apparatus—where we see the catarrhal manifestations most prominently—but the nervous system is also taken possession of with quite equal rapidity.

It has been shown that previous to and at the beginning of the recent great epidemic of influenza—which was said to have taken its start from St. Petersburg—the prevailing wind was unusual, and that its direction was from the northeast, from the cold, desolate and exile-populated region of Northern Siberia.

It has also been shown, from the admirable and painstaking reports under the care of the Michigan State Board of Health, that previous to and during the commencement

of the epidemic in that State, there was an unusual direction of the wind, notably from the *northeast*, and that, also, there was a marked increase in the amount of atmospheric ozone.

Again, it has been recorded by an able English observer, who carefully traced the course of the spread of the disease in its late appearance, that it clearly depended upon the lines and channels of human travel—that after its marked occurrence in St. Petersburg it worked its way eastward, the prevailing northeast wind possibly exercising some influence, following mainly, and very apparently, the international railway lines and great highways, passing in this way, and successively, through Germany, France, and other of the western continental nations of Europe, thence to England, across the Atlantic to the United States, progressively across the continent from east to west, thence across the Pacific to Japan and China. It then appeared to double on itself, taking a backward course, though with boundaries much less distinct.

Although the point of commencement of the great epidemic of 1889-'90 has been somewhat indefinitely given as being "east," and probably northeast of St. Petersburg, and although it has been synonymously termed "Russian Influenza" from its supposed origin in the Russian provinces, yet later investigations go to show that a peculiar disease having the characteristics of influenza prevailed throughout portions of China—and particularly in Hong Kong—in 1888, and that from thence it traveled across Siberia and first attracted general notice at the Russian capitol. This being the case it only adds to the remarkable nature of the disease, and this last epidemic, for it completes the evidence of the circumterreneous march of the affection. The course of the disease was westward constantly from its starting point in China until China was reached again after encircling the earth. The Russians called the disease "Chinese Influenza"; the people of the west termed it "Russian Influenza"; while later on, when it reached China again covered with renown yet the object of horror,

its name was once more changed to "Japanese Influenza," for its direction was from the east—from Japan. Dr. Joseph Cantlie, of Hong Kong says: "I contend that influenza is endemic in China, and that the prevalence of the disease in Hong Kong in September and October, 1888, was the start of the recent epidemic elsewhere."

In considering the course of the disease longitudinally there appeared to be attraction in the direction of the equator. This was observed in both the northern and southern hemispheres.

The report to the British Local Government Board, by its Medical Officer, clearly shows that the spread of the influenza depended upon human intercourse—that the disease spread no faster "than human beings, parcels, or letters could travel."

The commencement of the epidemic of 1891 was about middle of February, although a few cases occurred as early as January 1st. In my judgment the influence of this epidemic was felt by many for weeks before its manifestations were grave enough for us to diagnosticate it as a separate disease. There was a sense of weariness—a depression—a tendency to suffer pain in the back and extremities that was before this unknown. The height of the scourge was reached about the 20th of February, and it gradually diminished until the epidemic can be said to have ceased about the last of March. Its period of greatest intensity may thus be defined as from four to six weeks, which is about the usual time given in historical notices descriptive of this disease.

Age.—No age has been exempt from the ravages of this infection, and if children have been spared in other epidemics they did not escape the present one. Nursing babies at four months of age felt its influence, while a large number between one and three years suffered. Quite as many under the five-year mark were affected as between five and ten years.

One observer says: "The younger the child the more severe the grip."

Dr. P. Strassman (*Zeitschrift f. Geburtshülfe und Gynäkolog.*, Abst in *Archiv für Kinderheilkunde*, 1891, p. 132) says:—"In January 1890 infants became sick with symptoms of influenza. Child became uneasy, clear green nasal secretion, rapid respiration, voice hoarse, cough frequent. Also digestive disturbances in the form of either constipation or diarrhœa. In rectum the temperature was frequently found below normal—95°, 92°, 88.1°. All showed loss of weight. Youngest was three, oldest fourteen days old. One died from pneumonia. In two there was mild conjunctivitis, and in three there was an exacerbation of previous conjunctival inflammation."

CASES.—Some of the peculiar manifestations of this disease in children can best be understood and studied by narrating a few cases.

CASE I.—Baby G. age ten months. Sick two weeks before I was called with a complaint diagnosticated by an "irregular" as "teething." Physical examination revealed a slight pneumonia of the left lung, and in two days a general capillary bronchitis developed in both of the lungs. The bowels were loose, and there was some vomiting. Four days before death the child became restless and delirious, and would toss its head about, bite its hands, and was generally irritable. Later it became comatose, and death took place about one month after the commencement of the disease.

CASE II.—Baby McC. age ten months. When first seen this child appeared to have an ordinary bronchitis and to be in no danger, but in three days an inflammation of the small tubes had developed with exceedingly severe symptoms. There was the usual rapid breathing, more or less pain, and a temperature which repeatedly arose to 105 degrees F. Very early in the disease convulsions were present, which were not followed by symptoms particularly referable to the brain; but four days before its death—which took place at the end of the second week—all the symptoms of meningitis, that is, convulsions, paresis, changeable pupils, contractions and finally coma, were present.

CASE III.—Baby H., age, twelve months; bottle-fed and naturally delicate. Was called to see him on March

23, and found evidence of headache ; a condition of lassitude and weariness ; wanted to sleep and be let alone ; was nervous and suffering from exhaustion. These symptoms continued for fifteen days, when the child seemed actually better and the visit on the sixteenth day was omitted. The following day, however, a bronchitis, which may be said to have been "smouldering," suddenly increased in severity and the nervousness became more marked. The child became drowsy, was aroused with difficulty, and on the twenty-first day of the disease death resulted. Three days before death the ears began to discharge, and throughout the early days of the sickness there were symptoms of gastro-intestinal complication, there being vomiting and from six to ten bowel movements each day.

CASE IV.—Baby C., age, ten months. Pneumonia present from the first visit, and death in five days. In addition to the slight pneumonia there developed on the second day a capillary bronchitis throughout both lungs, with great dyspnœa, temperature 104–105° F., and a pulse from 140–150°. There were great nervous disturbances during the course of the entire illness, the child being constantly agitated, wanting to bite its hands, and was delirious to the last, though not comatose.

CASE V.—Baby D., age, eleven months, and nursing its mother. This child had a slight attack of bronchitis early in the epidemic, but recovered fairly after my third or fourth visit. In the course of a few days I was recalled and found trouble from a severe gastro-intestinal disturbance, the little one refusing its food and having from ten to twelve bowel movements daily. It refused to nurse its mother during its sickness, and was nourished upon the white of egg, brandy and a little rice-water. Very early in the disease this child would cry when it was moved, although the greatest care was exercised. A slight bronchitis took place during this relapse, but did not become serious. Nervous symptoms made their appearance and the patient was apparently sleepy at all times. It would remain with its eyes wide open for twenty-four hours at a time, but there were no convulsions, and in the course of three weeks this child made an excellent recovery, and is in a good condition of health at the present time.

CASE VI.—Baby J., age, one-and-a-half years. This patient was seen in consultation with one of the oldest

and most eminent practitioners of Chicago. The child had passed through a mild bronchitis, its nutrition had been much impaired, and it was, at the date of my first visit, drowsy and crying out in a manner resembling in some degree what is called the "hydrocephalic cry." The pupils were equal, however, and responded to light throughout the entire course of the affection. This child was watched with the utmost solicitude, as we hardly dared to hope that meningitis would not develop. None of the symptoms which are usually prevalent in this last-named disease made their appearance however, and after two or three weeks of particular attention to its nutrition, and such stimulation as we felt warranted in giving, it made an excellent recovery, and is fat and rosy to-day.

CASE VII.—Baby M., age, four years. This child had a very unusually developed nervous system, and upon the slightest exposure always had a high temperature. During the first days of his sickness the nervous symptoms predominated, but these, however, gave way, and for three weeks there were present in his lungs all the evidences of a general diffused bronchitis of the medium-sized tubes, with some indications of localization in the lower right lung. He lost flesh to an alarming extent; had a temperature which persisted for a long time; refused food for many days, but finally convalesced and is now going on as well as can be desired. I was particularly fearful of empyæma in this case, and made repeated examinations lest I should be mistaken.

CASE VIII.—Baby P., age, two years. Was called to see this child by a messenger who stated to me that the patient was in the midst of cerebro-spinal meningitis. I found the little one drowsy, vomiting, refusing all food, and with a considerable diarrhœa. In this case it seemed as if a meningitis would certainly develop with the usual fatal termination, but after watching it closely for eight or ten days, and with most assiduous nursing on the part of the parents, its convalescence commenced. This child was fed upon artificial food previous to its illness, and during its convalescence it was impossible to furnish it anything else. The parents were instructed how to sterilize food properly, and, with the exception of one or two very slight attacks of gastro-intestinal disturbance through the summer, it has progressed favorably and promises to become a perfectly well and healthy child.

Etiology.—The hypothetical causes of the disease have been classified as follows: (1). Poisonous changes in the air. (2). Contagion. (3). Products of local conditions and general influences.

Concerning the bacteriology of influenza little has been written. Germs of different character have been found in the muco-purulent discharges from the respiratory passages, but it is universally acknowledged that the particular bacterium has not, up to this time, been isolated. (It is just currently reported that Pfeiffer, of Berlin, has isolated the evident bacillus of influenza, and been successful in inoculations. The bacillus is said to be the most minute yet discovered.) It is, therefore, along this line that we should work in future epidemics to discover, if possible, the absolute cause of this disease.

Whether this disease is contagious or not is a question which at present must remain undecided, although there are many facts which go to show that it does, at least, possess this quality mildly. Dr. Herrick, of Chicago, gives the following observations:

"Father, mother, and two children sick in same week. Four children in one family sick during same week. Father, mother, and child sick during same week. Mother, infant one week old, and three children sick the same week. Three children sick at same time. Two children and older brother sick during same week. Child sick, then mother, then friend in same house who helped care for the child. Two children and mother sick in same week. Mother sick, two days later child nine years of age sick."

In many families nursing children had the disease two or three days after the mother.

Some writers deny any contagious nature whatever, and Hirsh makes a point that it does not spread in our day (the railroad age) more rapidly than it did one hundred years ago. The disease has also been known to rage in limited regions, and has refused to spread in spite of repeated communications. Opposed to this it has been known to take place as an epidemic on an island—where

the disease was unknown—after the arrival of a vessel; and in many cases every member of the same family has been afflicted with the disease at the same time, or within a few days.

Filatow (Arch. für Kinderheilkunde, Vol. V., p. 357), has written fully concerning the history and symptoms of the disease under consideration, and Otto Seifert (Samml. klin. Voetr., No. 240) has investigated its bacteriological history in a very thorough manner. I quote freely, particularly from the last author.

"If this disease is caused by a poison of organic nature, one might succeed in finding it in the blood or secretions.

"As long as the fever was at its height, the nasal and bronchial secretions were tenacious and mucous. In the sputum there were imbedded grayish-white gelatinous clots. As soon as the fever decreased and the subjective symptoms began to abate, the character of the secretions changed. Nasal mucus and sputum began to grow more liquid and muco-purulent, diminished in quantity as the patient improved, and at last became normal. To this difference in quantity and quality corresponded what was found by means of the microscope.

"*Preparation.*—Some of the most tenacious and transparent portion of the sputum and some of the gelatinous clots were colored with aniline dye in the usual manner. First, they were spread between cover-glasses, dried over a spirit lamp and put in methyl-violet solution, being left there for an hour. After washing with alcohol, and being dried once more, they were put into Canada balsam.

"*Under the Microscope.*—There are only a few cells, the tenacious mucus is drawn out in long, thin strings. Imbedded in these strings or beside them are an uncommonly large number of micrococci, measuring 1.5 μ to 2 μ in length, and 1 μ in width. (μ equals one one-thousandth of a millimetre, known as micro-millimetre, and is 1-25000th of an inch). Not in a single place are they in any relation with the pus cells, lying neither in nor upon them. As far as the arrangement of the cocci are concerned they lie mostly in long

chains, rarely by twos (diplococci) very frequently alone (monococci). The examination of the tenacious mucus from the nose showed the same result.

"It was now determined to (1). Examine the secretions of the respiratory passages in all of our influenza patients. (2). To make 'control' examinations. (3). To examine whether the blood contained micrococci. (4). To attempt vaccinations on animals.

Result.—I. We succeeded in every case to demonstrate the existence of micrococci in the nasal mucus and in the sputa. In staining, we did not limit ourselves to methyl-violet, but also tried other aniline dyes, whereby was shown that fuchsin was less good than vesuvin, and that double-staining did not succeed at all. Thus it was demonstrated that this micrococcus belongs to those forms which do not retain their first color. All other staining was done with methyl-violet. The secretions did not always contain an equal number of cocci, these latter were most numerous in the gelatinous clots, but also very numerous in the tenacious, transparent portions of mucus. As soon as the secretion assumed a muco-purulent character and increased in number of cells the number of cocci decreased remarkably, and in those portions which showed the greatest number of cells, there were just a few cocci scattered between the rows of cells. In the conjunctival sac we did not find any cocci.

"2. *Control examinations* :—The nasal secretion of three persons, suffering from an ordinary cold, were examined, and of two persons having contracted a cold in consequence of measles. In *none* of these cases have we been able to find micrococci as were described above for influenza. Also the sputa of six persons suffering from simple bronchitis were examined, as well as the sputa of those two persons sick of measles. No micrococci were found.

"3. The blood of the influenza patients was most carefully examined. No micrococci were found.

"4. The fresh nasal and bronchial secretion of an influenza patient was used for the vaccination of two rabbits, into the nasal cavity and the oral cavity respectively. On

the following day there was no change visible in either cavity of the infected animals. There was a slight increase in temperature. On the third day the conjunctiva of one of the animals were reddened, otherwise no change. On the fourth day a very slight increase in temperature; on the fifth day both animals were well again."

It is the question now, whether, on the ground of the above examinations, we are justified in believing in a living micro-organism as responsible for the occurrence of influenza. That absolute proof is in our possession showing that the cocci found in the nasal and bronchial secretions of the patients forms the only and direct cause of the disease, cannot be claimed as certainly demonstrated. Although the "control" examinations point in this direction, there have yet been no attempts made at cultures, and no vaccinations tried with all facilities insuring success.

Despite this, our author believes influenza to be caused by the above-described cocci, which are carried by the air to the respiratory passages, there finding a suitable soil for their growth and development.

Conditions of life of these low organisms:—The cocci secreted with the nasal and bronchial mucus, and in this condition being dried, are taken by the air and are carried rapidly from place to place. It is in this manner that the infection is transmitted through the medium of the atmosphere.

Life of the cocci:—If we believe them to be the specific cause of influenza they might be called *influenza cocci*, and we have to imagine that they increase in numbers on the mucous membrane of the respiratory passages, and by so doing produce the usual symptoms of the disease. It is not necessary that the mucous membrane should have been prepared for the reception of the cocci, for they spread on previously perfectly healthy membrane. As an explanation of the fact that not all persons are attacked by the disease, we assume a special individual predisposition within physiological limits. An analysis of the clinical phenomena shows that the intensity of the disease

is not dependent upon the number of the cocci. The local symptoms alone may be caused by the number and spreading of the cocci, which, by increasing in great numbers on the respiratory mucous membranes, cause an inflammation which will be noticed as an objective symptom. After a certain time there will be an accumulation, and an increased excretion (proliferation) of lymph cells in the endangered portion, and, in consequence of this reaction the changes in the tissues are going on more energetically, and during this competition between cells and bacteria, the former gains the victory (this is the Metschnikoffian doctrine—the hypothesis of phagocytosis).

Theories: 1st. The cocci may be simply flooded away by the increased excretion of cells, that is, by the more profuse and muco-purulent secretion.

2. They may be killed by certain chemical products of the cells. If we credit the cells with the production of certain chemical substances, we may attribute the same property to the cocci, the difference being that the product of the cocci is toxic in nature. The considerable amount of backache and pain in the limbs are assuredly not caused by the moderate fever, or they would disappear rapidly after the fever is gone. One of the symptoms that may be acknowledged as a special peculiarity of influenza is the slow convalescence, and the fact that the patient will complain of backache and pain in the limbs for weeks after the disappearance of the fever; which goes to show that the poisonous products of the cocci can only be slowly eliminated from the system.

The cocci usually remain localized on the respiratory mucous membrane, as shown in the negative results of the blood examination, and by the absence of swelling of the spleen. It is believed that in a few single severe cases the cocci may pass into the blood. This may be concluded more easily from the observations of Lenff, who has shown that swelling of the spleen has taken place in severe cases in some former epidemics, and that the disease has raged so severely as to cause sudden death.

Incubation and prodromes.—The incubation seems to occupy only two or three days, and in this respect resembles scarlet fever. After the disease is once introduced into the family only a short time elapses before it develops in those not previously afflicted. The prodromic period is not well marked, although slight catarrhal difficulties, not sufficiently severe to be much noticed, with some pain in the head and extremities, are the symptoms which become manifest at first, and are only remembered after the disease has fully set in. The very slight symptoms which were noticed in many—such as weariness, mild catarrh, either of the respiratory or digestive tract—were in all probability rudimentary, or abortive, attacks of influenza.

According to Unger a catarrh always developed, that is, symptoms referable to the mucous membranes of the respiratory system were always present. I cannot say as much from my experience. Some profound cases have taken place, in which the nervous system has been the only part of the body involved, the debility, headache, and terrible pain in the body and limbs being the only symptoms, while the respiratory apparatus and the digestive system were entirely free from the disease—from any symptoms indicating its presence.

General symptoms.—The disease seemed to affect more particularly one of three different groups of organs, or systems, sometimes alone, and sometimes affecting all three at the same time. Frequently the disease localized itself upon the respiratory mucous membrane, followed speedily by a catarrhal difficulty of the stomach and bowels, and accompanied by a general involvement of the nervous system. I have treated cases in which I momentarily expected a convulsion, with meningitis; in another death seemed imminent from the exhaustion following severe vomiting, and fifteen or twenty bowel movements daily; while the next would seem in a dangerous and critical condition from its rapid breathing and obstructed circulation. Almost a constant observation that occurred in my practice, was either a redness of the face, with

a tired or sleepy expression occurring at the same time, with redness of the conjunctiva, and of all the mucous membranes in sight, or an appearance of pallor and great depression with a feeling of weariness. This last symptom was particularly marked in many young and feeble children.

The severe chill which is noticed as a first symptom in adults, does not, so far as my experience goes, become manifested in the case of children. In almost all epidemics—and notably in the one I am describing—earache is mentioned as a prominent and frequent symptom. Indeed, associated with a catarrh of the upper passages, it is given as a prominent diagnostic feature.

Temperature:—Some authors make a distinction between a mild and severe form of the disease based upon the temperature, the milder forms having a temperature not to exceed 102 degrees F. in the afternoon, while the severer forms reach 104 degrees, or higher, at the same time of the day. In a few cases fever seemed to manifest itself only at one time during the day, and if but a single professional visit was made to the patient, the physician was likely to escape the temperature markings of the case. Many cases reached a temperature of 105 degrees in our epidemics, and one physician records cases showing 105.4 degrees, while another speaks of a temperature of 106 degrees. High fever, in my judgment, was not generally a noticeable feature in our cases—that is, a high temperature would not persist to such a degree, and for a long enough period to make it a possible cause of death. A high temperature, or at least a severe temperature, persisted for a long time during the convalescence of some cases, making us fearful lest there might be developing some systemic affection.

Particularly during the epidemic of 1891* did there come under my notice some rare instances of subnormal temperature, and extremely wide range of temperature—as great a range, in transient disease, and not ante-mortem,

* Epidemic of 1891-92.

as I can recollect of ever observing. I have the notes of one case in which, the second day after a temperature of 104-5 degrees was chronicled, the thermometer, in the same situation, would only register 96 degrees; and two days afterwards 93 *was the highest axillary temperature to be obtained*. In this case I have a showing of six days, during which the temperature at no time reached the normal point, varying from 93 to 98 degrees F. Furthermore, the system appeared not greatly disturbed, the pulse being 90 to 100, and the child at times normally playful and bright.

P. Malling Hansen, of Copenhagen (*Archiv. für Kinderheilkunde*, 1891, p. 84.) gives some very interesting figures indicating somewhat the constitutional effect of a full play of the resisting power of the body, or the influence of an undeveloped invasion of the specific cause of the disease. Studies in this direction will be valuable if they can be followed up.

Hansen says: "In the asylum for deaf and dumb at Copenhagen, all scholars are weighed daily. The figures do not give the weight of the individual child, but of groups. In 1889 the curves were usual. From Nov. 22 to Dec. 21st, 1890, the usual increase in bodily weight ceased, in girls entirely; in boys there was only 200 gr. instead of the usual 700 gr. per month. In feeding and all local conditions there was no change during this time. *Influenza was prevailing in Copenhagen during this period.*" The author's conclusions were that this peculiar standstill in the normal increase of weight represented the conflict between the influenza poison and the subjects, and that all had the disease, *although none of them showed other signs of its presence.*

Symptoms referable to the respiratory system:—A catarrh of the respiratory apparatus takes place with as great frequency as any other one symptom, commencing with the nose and upper respiratory passages and rapidly spreading so that within an extremely short time the entire air tract is involved. We have sneezing and evidence of involvement of the Schneiderian membrane, with a

cough, particularly of a tracheal character, which is soon followed by an apparent localization of the infection in one or both of the lungs, threatening a pneumonia. I have frequently noticed, however, that the following day a general bronchitis is found to be present, and the localization has disappeared. A general catarrhal bronchitis seems to be as frequent a complicating disease as was developed in the course of the late epidemic. The prevalence of a general catarrh of the bronchial tubes, which does not develop into a pneumonia, is an observation which should be remembered. We have, too, a severe and perplexing cough without any physical signs. Respiration is sometimes very slow, and a few cases have occurred in which the respiratory efforts have absolutely stopped for a few seconds, these peculiar paroxysms coming on several times during the day, and the life of the child has only been preserved during such times by the employment of artificial respiration.

Symptoms referable to the circulatory system:—Depression of the heart, and failure in its nerve supply, seem always out of proportion to all other symptoms. There is usually from the first a rapid and weak heart, and fainting takes place in many cases. The pulse is rapid and weak, and oftentimes intermittent. In some patients the temperature and pulse seem fair, but a general muscular weakness, with a tendency to faint is prominently noticed. One child had an organic heart disease after the influenza which had never been recognized previously. Cyanosis is sometimes present, and the weak heart is so manifest that death seems imminent.

Symptoms referable to the digestive apparatus:—Loss of appetite, with persistent vomiting, was noticed in many cases. Diarrhœa was a troublesome symptom in a large number of children, constipation present in a few instances; tongue flabby and coated and showing teeth indentations, indicating a state of malnutrition.

Symptoms referable to the nervous system:—Great irritability and fretfulness was almost always present, and if these little children could speak they would tell us of

headaches and hyperæsthesia of the scalp, and of joint and muscular pains. I have no doubt concerning these symptoms, for in many cases, although the greatest care was observed, they seemed to suffer whenever moved. Convulsions took place in a small per cent. indeed there was some impairment of the nervous system in about all the cases which I have observed. There was an indifference—a hebetude—noticed in a large number of cases. Congestion of the brain, with drowsiness, appeared with many, and in one case under my observation a child never closed its eyes for four days and nights. This child was not unconscious, it was not comatose, but indifferent—wanted to be left alone. Chorea has followed a number of times.

Next to the catarrhal symptoms, one of the most peculiar manifestations noticed was sleeplessness at night, and more or less excitement during the day. Little patients were remarkable in being obstinate, protesting against the slightest touch, and refusing the slightest examination on the part of the physician. This peculiarity is regarded as of diagnostic importance in differentiating from typhoid fever; in typhoid the child is gentle, indifferent. The extreme irritability of the nervous system makes the attendant fearful of meningitis. Acute mania has actually followed; in one case it persisted for over a week, and a second child, a girl fourteen years of age, was thus affected.

Complications.—Glandular enlargements take place with frequency, and tenderness of glands is of rather common occurrence. Inflammation of the parotid gland, simulating mumps, has developed, and in one case the glands of the throat in the vicinity of the bronchial tubes became swollen and tender. Abscess of the antrum has also taken place, and the connective tissue of the neck has become sensitively affected. Tuberculosis and tubercular meningitis followed in a few cases. Indeed, Unger makes the statement that these tubercular complications are particularly to be feared.

Hyperpyrexia, without evidences of local involvement sufficient to account therefor, and of a recurring nature, I have observed, particularly in one case wherein the body

heat repeatedly went to 105 degrees F., and in which the illness continued over a period of two or three months.

Dr. Boerne Bettman, of this city, kindly informs me that he has most frequently observed a simple conjunctivitis, similar to that seen in scarlatina and measles, and that he considered such condition secondary to the rhinitis accompanying the influenza. This observer also found many cases of catarrhal inflammation of the middle ear, resulting, in a few instances, in perforation of the membrana tympani, and profuse discharge. In most cases, however, there was not more than a condition of congestion of the drum membrane, which readily yielded to treatment. In neglected cases of both ocular and aural disturbances very much more serious results subsequently occurred, more properly classified as sequelæ than complications.

Diseases of the skin have also been noticed, such as, more particularly, erythema, herpes, urticaria.

Among the more general diseases noticed, have been rheumatism, nephritis and periostitis. Children having a tendency to rickets have been found to develop the disease with greater frequency and readiness after having an attack of influenza.

Diagnosis.—From simple catarrh *la grippe* will be recognized from the fact that there is greater prostration, that the disease continues for a longer period of time, and we appreciate that we are in the presence of an epidemic. The temperature is higher, and there is a tendency for the catarrh, which is at first local, to rapidly spread to other parts of the body. A severe and irritating cough, which resists all methods of treatment, if it occurs during an epidemic of influenza, should be classed as *la grippe*. A mild catarrh with rather severe neuralgia, with pain in the head and limbs, should also be included, and the same may be said concerning an irritable stomach with diarrhœa, particularly if we are sensible of an epidemic prevalence.

The disease is to be distinguished from typhoid fever by the fact that in influenza there are no rose spots, swel-

ling of the spleen is unusual, and the catarrhal difficulties, particularly of the respiratory tract, predominate above all other symptoms. If diarrhœa exists, as it does in many cases, it will be noticed that a cough and a catarrhal state of the air passages has preceded its development. The fever in influenza is irregular, while in typhoid it has a course nearly diagnostic of the affection. Typhoid fever is rare in children under two years of age; influenza is rather frequent within these boundaries. From pneumonia, we differentiate by the absence of the usual physical signs, although at the onset of *la grippe* there may be every evidence of a pneumonia, yet in a few hours the localization has become diffused, and a genuine (and more or less general) bronchitis is the result. The presence of meningitis can usually be detected by careful observations of the eye, the rigidity of the muscles, and other symptoms nearly always present—although in my judgment the differentiation of meningitis from severe forms of *la grippe* is attended with trouble, and a diagnosis must frequently be held in reserve for some time. The different manifestations of tubercular disease which follow in influenza, will be made out by carefully watching the temperature and respirations, observing the influence on the general nutrition, and by the development of tubercles on the choroid.

Prognosis and Mortality.—The mortality is different in different epidemics, and the character of the epidemic must be considered the same as we do in other infectious and contagious diseases of children. Death takes place from almost every complication; in the main, however, it is exhaustion and bad nutrition that we have most to fight. It is claimed by some that apoplexy occasionally causes death.

The length of time consumed in the convalescence from this disease is rather wonderful. The pains and general weakness do not disappear for weeks, and as I remark in another place, a fever may continue for months, and without doubt many of the sequelæ will remain for years, if not throughout the lifetime of the individual.

One significant fact which presented itself to me, and to which my attention has been later attracted in an examination of the literature bearing upon this subject, is that children do not suffer from this disease until late in the epidemic.*

In the city of Chicago, closely following this terrible epidemic which prevailed alike among children and adults, has followed a most severe epidemic of typhoid fever. Just what its relation to the previous occurrence of influenza may be, I cannot at this time state. Children were affected with *la grippe* and their general nutrition greatly reduced, then followed a large number sick with the typhoid fever; and now, whether there was a direct relationship between the two diseases, or whether the systems were weakened by the first affection so as to make it more easy for the typhoid to gain entrance, I reiterate, cannot now be unquestionably stated. Dr. Foster writes me his belief that the poison of influenza so weakened mucous surfaces that the germs of typhoid had an easy and favorable nidus. It is hoped that future observations will enlighten us on this subject.

Somewhat in this line of thought, but not directly allied to my subject, is the question of premature births and abortions. An examination of the literature finds the statement that pregnant women—under the influence of epidemic influenza—are more liable to premature deliveries. It was noticed by some of my correspondents that rather an unusual number of cases aborted, and that premature labors were somewhat more frequent. I am certain that the prevalence of *la grippe* in the persons of our puerperal patients produced fever which continued for many days, and that the catarrhal symptoms, with the irritating and relentless course, made their convalescence very slow and tedious.

Treatment.—If the disease is of bacterial origin then great care must be taken with regard to its prophylaxis. All handkerchiefs and cloths used by the patients must be

* This fact was not noticed in the epidemic of 1891-92.

immersed in some antiseptic liquid, and all cuspidores and articles of furniture which come in contact with the germs which may produce this disease, should be carefully disinfected.

As far as my observation has extended, there is no specific treatment for this disease, but I should say that a *generous diet*, with some stimulation and a conservation of all the strength of the patient, should be observed from the first—and just as carefully as we give attention to these conditions in typhoid fever. For the general pain which pervades the entire system, nothing has given as good results, in the cases falling under my care, as phenacetine, either alone or in combination with salicylate of soda, and, in certain cases where the fever is high, and where the strength will allow it, moderate doses of antipyrin.

For the extreme fatigue and depression which children evince, milk-punch, with some of the effervescing waters, together with small doses of quinine and a generous diet, seem to give the best results. Whenever quinine was used it was administered by inunction or by the rectum.

The plan of sending city children into the country has nothing to commend itself to me, for the disease raged with quite as much severity in the outlying districts as in our city.

If the catarrhal difficulties impede children from nursing, then their nutrition must be kept up by artificial means.

By way of conclusion, I feel that I cannot too strongly emphasize the necessity of conserving the vital energy of these little sufferers when laboring under the very markedly depressing influences pertaining to this disease; I am thoroughly convinced of this point, and the value derived from carrying out this principle.

I would advise the early use of equal parts of whipped egg-albumen and sterilized water, with a little brandy and sugar, varying the amount of the alcoholic according to the condition, age, and individual susceptibilities of the patient. This should be exhibited often and with regularity,

and in such quantity as to be readily assimilated. As the child begins to pass out from the more painful and acute manifestations of the disease, there may be given, in addition to the generous diet, the compound syrup of hypophosphites, together with pepsin cordial and a little nuxvomica. This more particularly in the way of a tonic, or "bracing agent." Where the lungs are particularly involved—and they often become very rapidly involved—the more pronounced diffusible stimulants have an important place. Here the carbonate of ammonia is of service, also, aromatic spirits of ammonia, alcohol, camphor and musk, and either, or all, are well fortified by the conjoint use of small doses of digitalis and nuxvomica. In these lung complications the same general tonics and reconstitutives may be used during the period of convalescence. Malt and hypophosphites, also, malt and cod-liver oil are first-class agents for this purpose. In the gastro-intestinal form even a greater degree of attention should be directed to the diet. Everything passing into the stomach should be simple and very easy of digestion—pre-digested so far as can be. It becomes often necessary to avoid all milk, using, instead, rice-water with a little cream, and a small quantity of wine of reliable vintage. Where there is great, or even moderate, gastro-intestinal fermentation large doses of bismuth, combined with a moderate amount of salol, has given the best results in my hands.

I have found some cases—the exact proportion to the whole number I have not determined as yet—where there was as profound and sudden collapse as appears in severe cases of cholera infantum; where, in a few hours, the patient would be placed upon the very border-lines of dissolution, demanding the prompt use of external heat, and the active diffusible stimulants.

Since this paper was read, and more particularly while it has been in the hands of the printers (February, 1892), several important communications have been received. It is impossible to incorporate these recent investigations which, though they would not change my general obser-

vations, would add much to our knowledge of this disease. The study has been along the line to discover a cause for these terrible visitations which, possibly, has been successful, but I must be content to refer the reader who desires additional literature on the subject to the *British Medical Journal*, January 16th, 23d and 30th, and to the *Medical Record* of January 30, 1892.

A CASE OF ULCERATIVE CATARRHAL DYSENTERY.¹

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THE discovery of amœba in dysenteric discharges, associated with a definite clinical history and characteristic lesions in the intestine and other organs of the body, marks an epoch in the history, of this important class of diseases. So long as we were dependent upon the clinical history and anatomical lesions alone to distinguish between diseases so closely resembling each other, as the different forms of dysentery, it was impossible to have clear views concerning them, but when we can add to this means of differentiation a special etiology for one form of the disease, much of the confusion is removed.

Amœba were first observed in intestinal discharges by Lambl, in 1860, in the stools of a child affected with enteritis, but no importance was attached to these organisms until 1872, when Löscher found them in a case of dysentery. Löscher thought amœba either caused the disease or proved a source of irritation, and prevented the ulcers from healing.

Since attention has been drawn to amœba by the views of Löscher, they have been found in dysenteric discharges by numerous observers in different parts of the world, and

¹Read before the American Pediatric Society, Washington, D. C., September 25, 1891.

the recent work on this subject by Councilman² and La-fleur establishes almost beyond doubt, that amœba cause the disease previously known as tropical dysentery, and that this disease is by no means confined to tropical countries, but is also not uncommon in this country and in Europe.

With the other forms of dysentery now recognized, viz., catarrhal and diphtheritic, we have not been so fortunate. Nothing is known of a specific exciting cause.

Amœba have not been found in catarrhal and diphtheritic dysentery having relation to the anatomical lesions; and from the nature of the lesions in these forms of dysentery, it is probable we have to look for an origin from bacteria rather than amœba. It has been supposed for many years that bacteria play an important part in dysentery. In 1869 Hallier observed a number of micrococci in dysenteric discharges, which he claimed to have differentiated by culture methods from the micrococci found in the diarrhœal and healthy fœces. But the methods in use, at that time, for separating bacteria were so imperfect, that no reliance could be placed in his assertion.

Since the introduction of trustworthy methods for separating bacteria, considerable attention has been paid to bacteria in the diarrhœal fœces, but very little attention has been given to those in dysenteric discharges.

There has not, to my knowledge, been a case of dysentery in which cultures have been made of bacteria in the intestine and other organs of the body after death, and only a few cases in which bacteria have been isolated from dysenteric stools.

Conclusions cannot be drawn from a single case, and such is not intended in this report. With the advantage of an autopsy in thirty minutes after death and cultures made from the abdominal organs in one to three hours after death, the record of a single case carefully worked out under such favorable circumstances may be of importance for future comparison.

²Johns Hopkins Hospital Reports, 1891.

Henry L., twenty months old, was admitted to the Thomas Wilson Sanitarium, July 20, 1891. One week before this he was taken sick with vomiting and purging. The stools were not frequent for the first few days and were composed chiefly of yellow fluid. On the fifth day the stools became more frequent, and contained mucus and blood, and were accompanied with pain and straining.

He was the second child in the family. The other child died of dysentery when two years old. Parents healthy. This child had previously been healthy with exception of slight colds, and for three weeks prior to the present sickness he had at times a tendency to loose bowels, but never more than two or three loose stools during the day, and this only for a few days at a time.

He had been nursed at the breast, and in addition given food from the table, including cabbage, tomatoes and other vegetables. The day before this sickness commenced, he ate some blackberries, which were discharged from the bowels almost in the same condition they were when swallowed.

Condition of patient when admitted to the Sanitarium.—Body greatly reduced in flesh; ribs beaded; chest sounds normal; pulse rapid and feeble; temperature 101° ; appetite poor; child restless and fretful; stools green, and contained lumps of mucus and blood; fifteen stools during the day.

He was under observation at the Sanitarium eleven days. His stools were not very frequent after the first day. He had eight stools on the 21st, twelve on the 22d, and after this from two to eight stools daily. The stools were often small, consisting of lumps of mucus and blood, and showing under the microscope chiefly blood corpuscles and pus cells, with comparatively small number of bacteria. The pain at stool was not very marked, and was manifested by restlessness or whining, and not by loud cries. The child was sometimes very restless and cried in sleep as if in pain; generally he laid in a listless and stupid condition. He had no appetite, and often had difficulty in swallowing. From the 20th to 26th of July his temperature ranged from 99° to 101.8° . After this time there was a gradual and almost steady rise in the temperature until the 30th, when it reached 104° .

Death July 31, at 2 A. M. Autopsy at 2.30 A. M.—Body emaciated. Heart and lungs appeared normal except that both were very pale.

Stomach.—Contained about one ounce of dirty, milk-like fluid, which showed under the microscope immense number of bacteria, some of which were micrococci, chain bacilli and forms like bacterium lactis ærogenes. There were also a few sarcina.

Duodenum.—Nearly empty and had an invagination, one and one-half inches long, a few inches below the pylorus. Contents of the duodenum were brown and pulpy, which, examined under the microscope, were found to contain cylindrical epithelial cells and few bacteria. The most numerous form of bacteria resembled bacterium lactis ærogenes. There were few of the micrococci and chain bacilli seen in the stomach, and few forms resembling bacterium coli commune.

Jejunum.—Slightly distended with gas, and had a small amount of greenish pulpy substance in places, which was found on microscopical examination to contain epithelial and small round cells, and many bacteria. Forms like bacterium lactis ærogenes predominated. There were also a few small rods, micrococci, and some like bacterium coli commune.

Lower end of ileum.—Contained bloody, purulent fluid, which showed under the microscope pus and epithelial cells, blood corpuscles and enormous quantity of bacteria of many different forms.

Colon.—The upper end of colon contained large quantity of white purulent fluid, the lower end bloody purulent fluid. Microscopical examination; pus cells, blood corpuscles, and large number of bacteria, which were mostly forms like bacterium coli commune, shorter and thicker rods, and some smaller rods.

The following report is from Prof. Welch's examination of the abdominal organs :

The entire length of the large intestine, from cæcum to anus, is extensively ulcerated. The prevailing ulceration is superficial, involving, apparently, not more than mucous membrane. The ulcerated part has a smooth, grayish appearance, with irregular margins, the remaining mucous membrane standing as islands, and larger or smaller areas, elevated, brownish-red, soft, velvety, highly congested, on this grayish ulcerated surface. At first glance it is not altogether easy to say whether there is any ulceration (except the small ones noted below), but frozen sections show the ulceration to be so extensive in places, for instance, just above the anus, that only here and there a small islet of mucous membrane remains.

There is no undermining of mucous membrane. The process involves the whole length of large intestine, with about equal intensity, perhaps rather more extensive, below. There are in places small, round, deeper ulcers, generally not more than 2-3 mm. in diameter, easily recognized as ulcers, extending into the sub-mucosa.

The Peyer's patches in end of ileum are somewhat swollen and surface is irregular, the last one may be superficially ulcerated, but not positively to be recognized as ulcerated.

Liver, firm, pale whitish-yellow. Frozen sections show intense fatty metamorphosis, involving the whole liver, the liver cells being filled with medium-sized and small oil drops. The process is in many lobules most intense around centre of lobule and in peripheral zone, leaving intervening middle zone less affected.

Kidney rather pale to naked eye. Some opaque whitish dots and streaks in cortex and pyramids visible with naked eye on frozen sections, which, microscopically, show considerable fatty degeneration and cloudy swelling of renal epithelium. That of convoluted tubules much affected, likewise tubes in pyramids. Some fine fatty granules in glomeruli. Some tubes, especially in cortex, contain irregular, homogeneous refractive material.

Great number of bacteria seen in surface of frozen sections of intestine, which show the surface of the ulcerated part richly infiltrated with small, round cells, with only moderate deep infiltration of sub-mucosa at this place, and apparently none where mucosa is intact. There is neither microscopically nor to the naked eye any trace of diphtheritic deposit.

The process appears to be a suppuration or infiltration of mucosa with leucocytes and breaking down of the superficially infiltrated parts.

Examination of the hardened sections by Dr. Councilman:

Lower end of ileum passing through the last Peyer's patch. Over considerable portion of section there is loss of substance of upper layer of mucous membrane. In very few places this involves the entire thickness of mucosa, extending to muscularis mucosa. The interglandular tissue contains an excess of lymph cells with a few leucocytes. The glands are generally filled with mucus, and in some a few leucocytes are found. Some small cell infiltration of sub-mucosa. Muscularis mucosa unchanged.

Colon.—Changes much more extensive and characteristic, almost confined to mucosa. In places the glands are swollen, filled with mucus and pus cells, and show extensive desquamation. The interglandular tissue also contains a number of leucocytes. There is extensive loss of substance, sometimes involving only the upper layer of mucous membrane, sometimes the whole thickness of this down to muscularis mucosa ; for a considerable distance this may be laid bare. In some places there are enormous dilatation of blood vessels of mucous membrane. In only a few instances has the process extended into the sub-mucosa, when it has, there is also here a shallow loss of substance. In the sub-mucosa there are in places slight thickening, swelling of connective tissue cells and granulation cell infiltration.

The lymph follicles are not involved in the process at all.

The whole process appears to be one commencing on the surface and slowly extending downward.

Bacteria isolated from contents of stomach and intestine, and other organs :

Roll-tube-cultures were made in one to three hours after death, from the stomach, intestine, mesenteric glands, liver, gall-bladder, kidney, spleen, and blood from the heart.

Stomach.—1st tube cloudy from number of colonies ; 2d tube thick, but colonies isolated, chiefly colonies of bacterium lactis ærogenes ; many colonies of a slow liquefier, none of bacterium coli commune.

Duodenum.—1st tube cloudy ; 2d tube thick. Almost a pure culture of bacterium lactis ærogenes.

Jejunum.—1st tube cloudy. Chiefly bacterium lactis ærogenes ; many of bacterium coli commune.

Upper ileum.—Colonies numerous, many of bacterium lactis ærogenes and bacterium coli commune. Few colonies of a new species of bacteria.

Lower ileum.—1st tube cloudy. The new bacillus predominated, bacterium coli commune and bacterium lactis ærogenes numerous and nearly equal in number.

Colon.—Tubes very thick ; bacterium coli commune predominated, many of the new bacillus ; many colonies of a bacterium, closely resembling bacterium coli commune ; few of bacterium lactis ærogenes.

Mesenteric glands.—Gland opposite duodenum, one colony of bacterium lactis ærogenes ; gland opposite upper end of colon, about one hundred colonies ; twelve of these

were bacterium coli commune, the other colonies were the new bacillus.

Blood from the heart contained a pure culture of the new bacillus, but the number was not estimated, owing to liquefaction of the tube from atmospheric heat. No growth on tubes from the gall-bladder and spleen. Tubes from liver and kidney were rejected.

General considerations :

1. Comparison of the bacterial vegetation in this case with that of the healthy and diarrhœal intestine of sucklings.

Healthy intestine examined by Escherich.—Two species of bacteria constantly present, viz., bacterium lactis ærogenes and bacterium coli commune. These two species have a constant relation to certain parts of the intestine: bacterium lactis ærogenes being most abundant in upper part of intestine, and often a pure culture in the duodenum. It diminishes in number in passing down the intestine, and but few are found at lower end of ileum, and still smaller number in colon. Bacterium coli commune greatly predominates over all forms of bacteria in the colon, and often a pure culture there. It is often not found at all in the duodenum; is sparse in jejunum, but becomes more abundant in the upper end of ileum, and at lower end of ileum greatly exceeds bacterium lactis ærogenes in numbers.

Diarrhœal intestine.—In five cases which I have examined the relation of the two above-mentioned species of bacteria in the intestine differs from that found by Escherich for the healthy intestine. Bacterium coli commune was almost as abundant in the duodenum and other parts of small intestine as bacterium lactis ærogenes, and the latter was more abundant in the colon than appears in the healthy condition.

In this case of dysentery, bacterium lactis ærogenes and bacterium coli commune correspond in their distribution in the intestine more with the healthy than the diarrhœal intestine.

Bacterium coli commune and bacterium lactis ærogenes are pathogenic in lower animals. Whether they become in-

jurious to children, and the conditions under which this may happen is not known. The determination of their true pathogenic properties is one of the most interesting problems of bacteriology, and is at present attracting considerable attention. There are reasons for considering them more capable of power for harm than their constant presence in the healthy intestine would lead us to suppose.

2. The presence in this case of a new species of bacteria in large quantity in the diseased part of the intestine and its absence in the healthy portion. This species of bacteria differs from all the species which I have isolated from the contents of the rectum of eighty-five children affected with diarrhœa, and does not correspond to the description of the bacteria isolated by others from the diarrhœal fæces. In morphology it resembles bacterium lactis ærogenes, but is slightly smaller, and forms nearly round, like cocci, are more often seen. The gelatine colony-growth also resembles bacterium lactis ærogenes. The spread, surface colonies have the same loose brownish-yellow appearance, but in this species there is a knob-like central point, which gives a button-like appearance. The deep colonies differ more from those of the bacterium lactis ærogenes in having a beautiful concentric arrangement, but this is not always present. The milk-litmus reaction is characteristic. The litmus gradually fades, and in three to five days in the thermostat the milk is coagulated into a soft clot. The change of litmus to red requires a longer time, and only takes place on top of the clot. This species of bacteria produces fermentation in milk.

3. The presence of a species of bacillus, not previously recognized, in considerable quantity in the colon. This species resembles bacterium coli commune in many respects, but differs from it in not coagulating milk or reducing litmus.

4. The large number of bacteria in the stomach.

5. The large number of bacteria found in the mucous membrane of hardened sections of colon. Most of the forms seen resembled bacterium coli commune, many resembled

the new bacillus, but these were nowhere so abundant as bacterium coli commune. The latter are found in great abundance in some places, and extended through the whole depth of the mucosa. In some places the new bacillus was found in considerable clusters.

6. The distribution of the bacteria in the mesenteric glands. In the duodenum bacterium lactis ærogenes was almost exclusively found, and in the gland opposite the duodenum the only colony growing from the culture was bacterium lactis ærogenes. In the colon where the new bacillus and bacterium coli commune were in greatest abundance, the glands of the colon contained considerable numbers of these two species, and no other forms of bacteria.

Clinical Memoranda.

AN HOUR IN THE OPERATING ROOM OF THE
HOSPITAL FOR THE RUPTURED AND
CRIPPLED, NEW YORK CITY, TUESDAY
MORNING, JANUARY 12, 1892.

BY V. P. GIBNEY, M.D.,

Surgeon-in-Chief.

CASE I.—*Deformity of hip after disease ; myotomy and manual force correct ; traumatism very slight.*

A boy, seven years of age, on the table for correction of deformity at the hip, result of disease, which developed between three and four years ago. Never any regular course of treatment. No acute signs about the hip ; limb held at an angle of about 130°, and adducted over an arc of about 10°.

Under ether, adductors divided, and a moderate amount of manual force employed for about five or six minutes, when the deformity yielded, a few periarticular adhesions being broken. A snug dressing over the joint, thorax, pelvis, and the whole limb enveloped in a thin layer of cotton wool, extra thicknesses being applied over the knee and ankle, and along the spinal column, roller bandage of cheese-cloth over this, and plaster-of-Paris applied

from bottom of foot to lower part of axilla, plaster reinforced at the hip by a steel bar. When the patient was removed from the table, the limb was down to 180° , and a little abducted. Time occupied, thirty minutes from beginning of ether to his removal from the operating table.

He will be placed in bed, plaster will remain for about a fortnight, during which time what little strain has occurred at the hip will undergo resolution, then a long hip splint is to be applied, with high shoe two inches on the sound foot, and patient will shortly after this be discharged, to continue under observation in the out-patient department.

CASE II.—Cold abscess from hip; aspirated and injected with iodoform and oil; no anæsthetic.

A girl, eight years of age, with an abscess of moderate size in the hip-joint, fulness extending from the gluteal region across to Scarpa's space; limb adducted and flexed to an angle of about 150° .

Without an anæsthetic, a large-sized needle of an aspirator thrust into the tumor, two ounces of rather thick pus withdrawn, syringe well washed out with sublimate, then an ounce of emulsion of iodoform and sterilized oil, thirty grains to the ounce, injected into the sac; very little suffering; snug roller bandage applied about the hip in the shape of a spica bandage, adhesive plasters to the limb, with weight and pulley; child placed on a Cabbot frame, and this frame on a wheeled chair, fully extended.

About two weeks ago this operation was done for the first time on the child, with little or no reaction following. The abscess to-day is not as large as it was then. It is expected that the sac will be smaller two weeks hence, and that after one or two more injections of iodoform and oil there will be a disappearance of the abscess. Then a walking-splint will be applied. Our experience leads us to believe that the case can be cured without any further operative procedure.

CASE III.—Multiple otitis with abscess at hip; aspiration and injection; full plaster-of-Paris dressing.

A girl, seven years of age, with otitis of the left knee, otitis of the right ankle, otitis of the spine (Pott's disease), all convalescing, and otitis of the right hip, with gluteal abscess of six or eight months' standing.

This child has been encased in plaster-of-Paris from the axilla to the soles of the feet, this dressing being found necessary to control the enormous muscular spasm at the

hip, and in the erector-spinae muscles. Treatment on a frame with weight and pulley failed to produce any effect on the spinal deformity, and three months ago the abscess was aspirated, not injected, and the plaster-of-Paris first applied. The first plaster bandage failed to give relief, and, within a week or two, a second one, after great care in adjusting, gave the necessary relief. At this time the abscess was aspirated again, and for nearly two months, now, she has been very comfortable.

The plaster is removed to-day because of an unpleasant odor in the lower part of the spinal column. After its removal there was found very slight excoriation over the bosse and a small point over the posterior superior spinous process, right side. Limbs in excellent position, abscess very small, fluctuation indistinct. The sac aspirated again after the child is thoroughly cleansed, and about two drachms of pus withdrawn, compress applied, and another plaster bandage applied as before.

The prognosis in this case is this: Recovery with spinal deformity extending from the mid-dorsal to the lumbar vertebræ, bosse not very large; partially ankylosed hip, but in good position; a knee with a small range of motion, no deformity; and an ankle with very good function. The plaster may require removal in from six to eight weeks.

CASE IV.—Result from through-and-through opening of double psoas abscess; operation six months ago.

A boy, nine years of age, who was admitted to the hospital in the early summer with a large psoas abscess each side, coming from Pott's disease in the dorso-lumbar, and a large abscess, also of spinal origin, over the outer side of the right thigh. Under ether, at that time, the two psoas abscesses opened just above Poupart's ligament, pus pretty thoroughly evacuated, counter-opening made in the ilio-costal space on each side, about an inch-and-a-half from the spinal column, large-sized drainage tube passed through and through. The femoral abscess opened at the same time with long incision, sac scraped, all washed out with peroxide of hydrogen, full dressing, plaster-of-Paris bandage.

At present the femoral abscess is healed, and hip functions excellent. There is a little discharge from each psoas abscess, requiring dressing once a week. Boy wears now a steel brace of Knight pattern, is convalescing rapidly, and is to go home within a fortnight. General condition good; prognosis fair.

CASE V.—*Aspiration having failed, thorough incision for cure of abscess a month ago; now a second abscess, quite deep; through drainage after incision.*

Boy, five years of age, tubercular ostitis of the hip, with very little deformity. Admitted to the hospital about six weeks ago, on account of a good-sized abscess on the outer side of the thigh, junction of upper with middle third. Then a needle was inserted, with the idea of emptying the sac, and injecting iodoform and oil. No fluid could be obtained. A free incision was made, and a mass of necrotic tissue, almost solid, turned out, sac thoroughly curetted, washed with peroxide of hydrogen, opening closed by suture, except in the lower portion, where a drainage tube was inserted. This healed within a month. Then another abscess was found on the inner side of the thigh, and extending under the femoral vessels. A week ago this second abscess was opened by two deep incisions, one on the outer aspect of thigh toward the anterior border, upper fourth, the other on the inner side of the thigh, about two inches below the perinæum; the pus finally reached, tent passed from one opening to another, sac thoroughly washed; injected as usual.

Case dressed to-day for the first time. Considerable infiltration in the groin. The through tent removed, and each opening lightly packed with iodoformized gauze, parts dressed, splint reapplied.

It is expected that this case will require very little operative interference beyond the three openings already made; the joint can be protected by a splint, and a good recovery is anticipated.

CASE VI.—*Progress in a case where hip was excised two months ago.*

Boy, about six years of age, whose hip was excised two months ago, in order to save life. Expectant treatment had failed. The head of the thigh bone with portion of the trochanter was removed, acetabulum thoroughly curetted, wound left open and packed. His temperature has fluctuated from 99° to 102°. He is dressed twice a week. The dressing to-day is pretty well saturated with pus; drainage is good, however, and the wound is healed in about two-thirds of its extent; limb in good position; boy doing well.

He will remain in hospital about six or eight months. At the end of this time it is expected that a cure will have been accomplished, with very useful limb.

SYPHILITIC STENOSIS OF THE LARYNX IN A
BOY FOUR-AND-A-HALF YEARS OLD; IN-
TUBATION; RECOVERY.

BY DILLON BROWN, M.D.,

New York.

THE patient was seen by me for the first time on the fourth of December 1891, through the courtesy of Dr. Leonard Dessar. At that time the dyspnœa was so great, and the struggles of the child against a laryngoscopic examination were so violent, that only a very unsatisfactory view of the larynx could be obtained. There was slight œdema of the arytenoid cartilages, but the vocal cords and inner larynx were not seen.

There is a clear history of syphilis in both father and mother. He acknowledges to have acquired the disease about six months before his marriage, and shortly after marriage his wife contracted it. She has had four miscarriages. The patient is their only living child. He presents no other evidence of syphilis, except the peculiar formation of the teeth.

The laryngeal symptoms began about three months ago with hoarseness, but the difficulty in breathing did not begin until two weeks ago. Since that time it has grown progressively worse with an occasional severe spasmodic attack. When I first saw the case, the dyspnœa was great, there were deep recessions of the soft parts of the chest walls on inspiration; although he was not blue, there was quite a marked change in his color; auscultation of the back showed that the amount of air entering the lungs was much diminished, and that, practically, none of it reached the lower lobes; he was restless and frightened, and the stenosis was so far advanced that he had obtained no continued sleep for thirty-six hours.

An O'Dwyer tube was placed in the larynx and the patient obtained immediate and complete relief from all his discomfort. The tube caused no irritation, and he was able to take his nourishment without difficulty. The tube

was removed at the end of five days and eighteen hours, during which time he suffered no inconvenience from its presence. He was not confined to his bed, but ran around and played as usual, and was treated as an office patient by Dr. Dessar. He received five grains of the iodide of potassium three times a day, which he continues to take. Since the removal of the tube there has been no return of the dyspnœa.

Dr. Dessar, who has made a careful examination of the larynx, kindly sent me the following report (Jan. 18, 1892):

"Inspection of the larynx at present shows thickening of the tracheal wall directly under the true cords. The arytenoid cartilages do not move as freely as normal, nor in abduction do they seem to rotate or expand the glottis to the extent of a normal abduction of the cords, proving, perhaps, the possibility of ankylosis of the arytenoid cartilages caused by the formation of syphilitic gumma in the tissue of the arytenoidal joints.

"The corditis vocalis inferior (Stoërk), or hypertrophic thickening of the tissue below the cords is a condition met with in cases of syphilitic laryngitis and may cause stenosis of the larynx. The false vocal bands are somewhat relaxed, but in phonation do not approximate. This condition is not due to specific trouble as a rule, but is a muscular relaxation usually following a catarrhal affection of the respiratory tract, especially chronic laryngitis.

"Whether the stenosis was caused by the inability, or rather immovability, of the arytenoid cartilages, fixing the glottis and rendering it impossible to open and close the same through adhesions or gumma of a syphilitic nature, or whether the direct stenosis was caused by the hypertrophy directly under the cords, I am not prepared to say. I am inclined to think that the latter cause was the predominating one, inasmuch as direct pressure from the tube seemed to permanently relieve the patient.

"The boy is getting along nicely. He continues to take iodide of potassium and cod liver oil. He sleeps well and does not suffer from dyspnœa."

ACUTE GENERAL DERMATITIS, WITH EXFOLIATION OF EPIDERMIS, CAUSED BY A SMALL DOSE OF QUININE SULPHATE.¹

BY AMELIA ERBACH, M.D.,

Washington, D. C.

MISS B., æt. seventeen years, had scarlet fever and measles when a child. Has always been well nourished and in general good health, though not very strong. Three months before I saw her, she began to suffer from general malaise, severe headaches, loss of appetite, obstinate constipation and amenorrhœa.

Consulted me, November 10, 1890. Found her with previous-mentioned symptoms, marked anæmia, insomnia, coated tongue, no fever, weak pulse, tenderness in epigastric region on pressure, no nausea, and had no action of bowels for five days.

Treatment.—First to relieve constipation. Gave blue-mass pill (5 grs.) to be taken at bed-time, and followed by seidlitz powder in the morning, which operated freely.

The patient living in the country, I left her aloin, bellad. et strychnia pills, to regulate bowels, and tonic tablets of strychnia, $\frac{1}{120}$ gr., arsenious acid, $\frac{1}{60}$ gr., iron, 1 gr., one grain of sulphate of quinine each. One three times a day, after eating.

Nov. 12.—Received a message to come immediately, that her parents were alarmed about her condition, fearing scarlet fever.

When I arrived, I hardly knew her, on account of the intense redness and œdema of face, which extended over entire body, more intense on the skin around the joints.

Informed me that she had felt better until eleven o'clock in the morning.

Took the first tonic tablet after breakfast, 8.30 A.M., and at 11 A.M. felt a peculiar stinging pain on the right thigh, gradually getting worse, with swelling and stiffness of hip-joint.

She noticed an eruption, which kept increasing, with slightly enlarged inguinal glands.

Next on the left thigh. Finally, the skin over all the joints was red, swollen and stiff, and so painful that the joints could not be touched nor moved.

¹Read before The Medical Society of the District of Columbia, January 13, 1892.

The eruption next appeared on her nose, gradually spreading over entire face, ears and scalp, with pain, swelling and redness. Œdema of lids was so great that she could not see, the tears discharging constantly when awake or asleep. Tongue was swollen, red, and protruded, papillæ elevated, similar to the strawberry tongue.

Tonsils enlarged, pharynx inflamed, with enlargement of cervical, parotid and sub-maxillary glands.

Eruption next appeared on the anterior part of the arms and legs, including palmar surface of the hands and feet, finally extending over whole surface. Axillary glands were enlarged; abdomen, back and chest affected last and least.

Duration of time affecting entire body was three hours on the day when tablet containing quinine was taken. Only one tablet containing one grain of quinine was taken.

Temperature was 102.6°; pulse rapid and feeble. Most annoying symptoms were pain, stiffness, and a peculiar stinging sensation over entire body.

Treatment.—Rest in bed, careful diet, fever mixture, containing aconite, sweet spirits of nitre, and solution of acet. ammon.; also a liniment of lime water and linseed oil with a one per cent. sol. of carbolic acid, to be applied over inflamed skin.

Nov. 13.—Swelling, pain and stiffness much improved.

Complained of insomnia, for which the elix. paraldehyde was given. Same treatment continued for two days, patient improving rapidly.

Nov. 15.—Three days after it appeared the eruption was almost gone; no fever, sleeping well, fair appetite, urine normal, bowels regular. She called my attention to her skin peeling, where the eruption appeared first; it resembled that of a blister.

No medicine given internally for two days, only liniment externally, which, she said, gave the greatest relief.

Nov. 17.—Wanted to get up, but was advised to stay in bed until the next day.

Had been unable to make a diagnosis up to this time. It evidently was not scarlet fever—from the slight fever, which lasted but one day.

Nov. 18, '90.—Six days after first skin symptoms she had entirely recovered.

Nov. 19, '90.—Ordered quinine capsules, two grains each, to be taken three times a day, after eating.

After taking one capsule the eruption again appeared in two hours, even worse than first attack. The eruption

was uniform, and characterized by minute vesicles, changing into pustules.

Gave same treatment as in first attack ; discontinued the quinine ; symptoms gradually disappeared, and skin began to peel at the same time ; remained in bed until the epidermis was off her entire body.

It amused her very much to see how large and perfect a piece of skin she could peel off unbroken. She completed the work in three days, excepting her ears, which were denuded last. Skin of hands and feet coming off like a glove and stocking. (Specimen exhibited.)

Nov. 27, '90.—Her skin was quite sensitive after being deprived of the epidermis, so I ordered cocoanut oil to be applied daily, also tonic tablets, without quinine ; she improved rapidly. One month later she informed me that her hair was falling out, also that her toe-nails had dropped off, and no signs of new ones ; new finger-nails were pushing off the old ones. Saw her last February, and she had no new toe-nails yet. Since the attack she has been enjoying good health.

This case is of interest, because it is a rare idiosyncrasy for quinine, and also as involving the question of diagnosis from scarlet fever.

That it was not scarlet fever was evident from the fact that the eruption lasted so short a time, and fever only one day ; also the peeling began on the third day. Besides, she had had scarlet fever when a child.

Dermatitis, as caused by quinine, is referred to in the text books on materia medica.

Phillips says : Speaking of the local poisonous actions of quinine that "most medical men have met with one or two individuals in whom any dose of quinine, but especially a large one, produced irritation of the skin, followed by free desquamation ; cases have not unfrequently been seen in which the whole skin of a hand or even of a limb has come off like a glove or a stocking.

A REMARKABLE RESPIRATION RECORD IN
INFANTILE PNEUMONIA.¹

BY WILLIAM A. EDWARDS, M.D.,

San Diego, Cal.

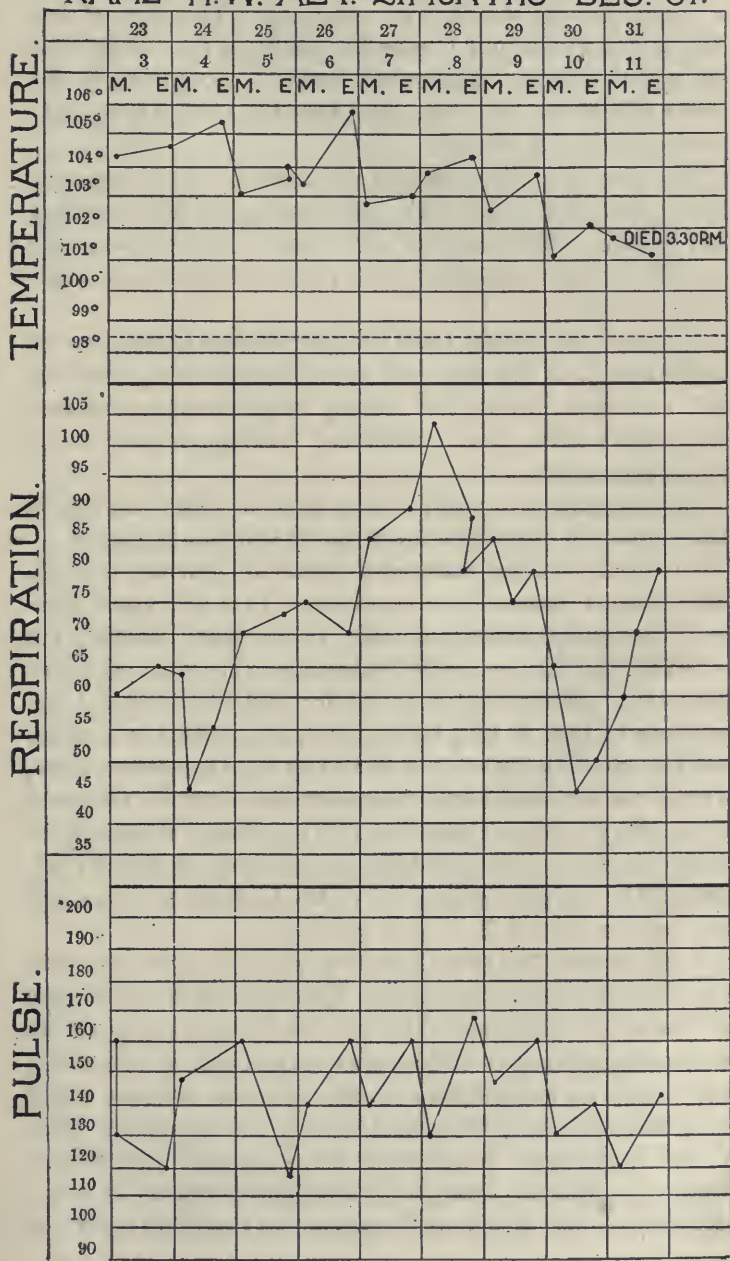
H. W., æt. twenty-one months, passed through the first stages of an acute croupous pneumonia under the care of Dr. McHatton, of San Diego, by whom I was called in consultation on the third day of the disease. At this visit the right lung was consolidated from base to apex, and the left base was intensely congested, later running through the stages of croupous pneumonia. The axillary temperature was 104.1°, the pulse 160, and the respiration 60 to the minute. The child survived nine days, during which it was under constant supervision. The appended chart will graphically present this unusual record. The respirations were counted several times by both Dr. James S. Waterman, who was associated in the treatment of the case, and myself, so that the correctness of the observation is beyond doubt.

In infantile pneumonia it is not unusual to record a respiration rate of 40, or even 50, as for example the nine charted cases of Minot, in Keating's *Cyclopædia*, show respectively a maximum respiration record of 40, 50, 48, 48, 52, 48, 36, 38, 48. The charts presented by Townsend (*ARCHIVES OF PEDIATRICS*, April, 1889, p. 214) show that in all his cases the respiration reached the rate of 40 some time during the disease. The highest rate reached in this series was 85.

The maximum rate presented by our case was 104, and the usual rate, 80. For a period of nine days the respirations never fell below 45 in a minute, but it was usually recorded at the higher rate of 80. It is this remarkable continuance of an unusually high respiratory rate that renders the case worthy of record. Instances of a respiratory rate in infantile pneumonia which are above the one under consideration have been recorded by several observers. Hirst (*Annals of Gynæcology and Pediatrics*,

¹Read before the San Diego County Medical Society, January 15, 1892.

NAME—H.W. AET. 21 MONTHS—DEC. 91.



December, 1890, p. 168) records a respiration rate of 127 in a very young infant, with recovery. The age of this child is not given, nor is mention made of the duration of this extraordinary respiratory action. Goodhart, in the recent edition of his book, says that the respirations may rise to 60 or 70 a minute.

The case also illustrates the statement which has been made, that the child with pneumonia, while breathing very rapidly, still breathes with ease in comparison with one affected by bronchitis, who presents the same respiratory record.

The child, of course, used the extraordinary muscles of respiration, and the alæ nasi were dilated during inspiration and were contracted during expiration, a condition that some writers have considered pathognomonic of infantile pneumonia.

The temperature, while not as high as other records, is still worthy of consideration from its unusual duration.

In Winsey's case, Maryland Medical Journal, July 28, 1888 (Sajous' Annual), of pneumonia in a girl aged thirteen, the temperature was 106° F. for sixty hours. He adds that the highest recorded temperature with recovery was 107°. Smith says that Squire has observed a temperature of 107° F. in a fatal case of pneumonia in a child, and Dessau (ARCHIVES OF PEDIATRICS, December, 1891, p. 656) has noted an initial temperature of 107° F., followed by recovery. An examination of Townsend's temperature charts shows a continued high temperature of about 104°, with little or no remission. The highest temperature reached was 106.2° F. in one instance.

As is shown by the chart, the pulse-respiration ratio was seriously interfered with. Throughout the nine days of illness, during which the child was under my direct observation, the loss of flesh was very slight, if any at all; nutrition was but slightly interfered with, and the child took nourishment with evident relish. A symptom that, in my experience has arisen often enough just before death in children from respiratory obstruction to merit attention, is the desire and attempt on the child's part to

bite the attendants. This condition arose in the present case eighteen hours before death, when the little fellow made a savage attempt on my hand while taking the pulse. I have notes of nine other similar conditions arising before death in diphtheria and pneumonia. The patient had a sudden convulsion and died apparently from respiratory and cardiac exhaustion. We will not discuss here the relation of the high temperature to this fatal convulsion.

DOUBLE EMPYEMA.

BY F. HUBER, M.D.,

New York.

FOR the history of the following case, occurring in the practice of Dr. — Holmes, I am greatly indebted to the kindness and courtesy of my friend, Dr. A. F. Brugman :

Arthur G., æt. 6 years. First called to see him on Feb. 13, 1888. He had a lobar pneumonia of right lung which ran a typical course for the first week or ten days. Convalescence did not follow in the usual way. After a short period of improvement temperature became elevated, pulse and respiration very much accelerated, and dulness over the affected side increased, and finally flatness was observed over almost the entire right pleural cavity.

March 21, operated by free incision in right pleura, evacuating a pint of laudable pus. Inserted drainage tube and washed out cavity, with bichloride solution (1-10,000).

March 25, changed dressing first time. Having discovered evidences of fluid in the left pleural cavity, and believing it to be pus, a free incision was made on this side March 27.

March 28, dressed left side; 30th, both sides dressed. Pulse 120, temperature 102, respiration 70. March 31, pulse 120, temperature 98½, respiration 60. April 1, dressed both sides. Pulse 120, respiration 40, temperature 100. April 4, both sides dressed; 5th, temperature 98½, respiration 48, pulse 108. April 6, changed dressings; 9th, dressings changed. Thick, healthy pus (about 3 iss.)

came from left side ; nothing from right. Dressed with sublimate gauze, and without washing. April 16, changed dressings. Temperature $100\frac{1}{2}$ (mouth).

Dressed both sides April 21, and 25, May 1, 6, 11, and 19 ; May 28, dressed both sides and removed drains.

June 4, left side almost entirely closed, and in reality no discharge.

From right side full one ounce of pus was discharged upon introducing a probe and moving it about. General condition is decidedly improved compared with that of one week ago. Dressed both sides.

June 8 and 15, dressed one side only. July 11, small amount of pus on right side. July 13, dressed right side. 19th, discharged.

The patient recovered completely, and has enjoyed excellent health since.

In the Transactions of the American Pediatric Society for 1889, I reported the history, with the subsequent progress and treatment, of two cases of double empyema under my care in private practice. Both of the patients recovered, and are in excellent health at the present time. The pulmonary expansion is complete ; chests are well developed ; no lateral curvature. In both cases, simple incision posteriorly below the angle of the scapula, with drainage, was resorted to.

Cases of double empyema are of special interest. A few remarks upon the treatment followed may prove of value. One authority states that Bülan's method is almost indispensable in bilateral empyema. Yet quite a number of cases have been reported which terminated successfully after incision and drainage, with or without resection of one or more ribs.

In some of the cases the interval between the operations on the two sides has been a few days, in others more than a month elapsed before the other side was operated upon.

Batchelor reports a successful result with an interval of only five (5) days in the operation of incision and drainage. In my first case but four (4) days were allowed to elapse before the other side was incised and drained, the right pleura having been aspirated a week before. Right pleural cavity aspirated Jan. 31; left pleura incised and

drained Feb. 2 ; Feb. 6, right pleural cavity opened and drained.

In Dr. Holmes' case, reported above, the right side was operated upon March 21; six days later, a free incision was made on the left side.

Whether it is advisable to open up the two sides at one sitting, or to wait a few days before the second pleural cavity is drained, is a question which we encounter. Arguing from the favorable results in the published cases, it would appear to be wise, and certainly is safe, to adopt the conservative plan, to defer the operation upon the other side for a few days at least.

As to the relative merits of the different methods of operating, nothing definite can be stated. This question must be decided by the individual operator, who will probably select the operation with which he is most familiar, and which in his experience has given him the best results. This much, however, cannot be disputed: among the reported cases, those in which simple incision and drainage were resorted to pursued as favorable a course as those in which the more severe operation of partial resection of one or more ribs was practiced.

A CASE OF SPONDYLITIS SIMULATING SCOLIOSIS.

BY ROBERT JONES, F.R.C.S.,

Liverpool, Eng.,

AND

JOHN RIDLON, M.D.,

New York.

April 8, 1889.—The patient, a girl five years old, healthy, and of good heredity, for three weeks has been noticed to walk leaning somewhat to one side. There has been no pain, no restlessness in sleep, and no loss of appetite. The right shoulder is higher than the left; the right scapula is tilted forward, with its lower angle prominent and somewhat further from the spine than the left. There is

a mid-dorsal curvature to the right, with bulging of the ribs on the side of the convexity, and a lumbar curvature to the left, with prominence of the muscles on the side of the convexity of the curve. There is no spinal pain or tenderness. There is slight rigidity to passive manipulation in the dorsal, but none in the lumbar curvature. There is no abnormal antero-posterior curvature and no angle or kyphos.

Under the diagnosis of scoliosis, exercises were commenced with a view to increase the suppleness of the curvature, reduce the deformity, and develop sufficient muscular strength to maintain the spine in the corrected position.

The exercises were given daily for five weeks. The deformity steadily increased in severity, and the dorsal curve became more rigid. A stiff spinal spring-brace was then applied and worn during the daytime and the exercises were continued. At the end of two weeks there was no change. The exercises were now discontinued and the patient directed to sleep in the brace. At the end of four weeks there was less rigidity, and the curvature was somewhat reduced. At the end of three months more the lateral curvatures had both disappeared. The patient was able to stand and walk normally, but a distinct knuckle (angular kyphos) had appeared, consisting of the spinous process of the tenth dorsal vertebra.

Beyond the point of sufficient prominence for rendering the diagnosis of spondylitis absolutely certain, the kyphosis did not progress. At the end of twenty-one months from the commencement of treatment, the patient, standing with the brace removed, could bend forward and touch the toes and rise again without any evident weakness. The wearing of the brace was then discontinued at night, and at the end of two years from the beginning it was removed altogether.

The degree of motion in the region of the knuckle has steadily increased until now; ten months after the removal of the brace it appears to be normal.

The lesson from this case is that the lateral curvature which is so often found in the early stages of Pott's disease may exist without any kyphotic deformity; that the lateral deformity may be accompanied by true rotation and consequent bulging of the ribs on the side of the convexity, although it is true that this rotation is usually ab-

sent; that treatment by exercises increases the deformity, and consequently any increase of curvature under treatment by exercises should be viewed with suspicion, and the exercises suspended as soon as the suspicion is confirmed; that the lateral curvature of spondylitis is readily corrected by leverage and immobilization; that spinal caries may develop and progress to sufficient destruction of a vertebral body to cause a permanent knuckle without pain or night-cries, and without the appearance of abscess; and that Pott's disease, under efficient mechanical treatment, may go on to complete recovery of flexibility and strength in a young child in so short a period as two years.

If in this case sufficient consideration had been given to the fact that the rigidity of the dorsal curve was greater than the duration of the symptoms would warrant in scoliosis, the error in the diagnosis and treatment at the beginning might have been avoided. In spondylitis, rigidity of the affected area is the first symptom to appear; in true scoliosis the rigidity rarely occurs except after prolonged malposition, and in very many cases due solely to that malposition.

A PLEA FOR THE TOOTH-BRUSH AND DIS-INFECTION OF THE MOUTH IN CHILDREN, ETC.

BY J. MOUNT BLEYER, M.D.,

New York City.

IT is only recently that the study of bacteria of the human mouth has been zealously pursued by various investigators, and much has been accomplished toward bringing to light the causes of the various affections of the mouth and its associate parts. Prof. Müller, of Berlin, has repeatedly said that the human mouth was the abode of numerous microscopic organisms. But only within the last five years, really, that the more exact methods of bacteriological investigation have come into use, and thus a more definite knowledge acquired as to their form and life. There is no

part of the human body which furnishes better spots for their cultivation than that of the mouth and teeth. There are now known nineteen different pathogenic micro-organisms, which have been experimented with, and there are found many of those organisms of the character called non-pathogenic, which means that they do not produce a certain specified disease, but may become, under favorable conditions, pathogenic in the development of certain diseases, which, up to the present time, we know nothing of. These organisms of the non-disease-producing kind—or non-pathogenic—live and propagate upon the various organic substances in the secretions of the mouth—particles of food, which have been allowed to remain after meals between and in cavities of carious teeth and neighboring parts. So far these last-named organisms act deleterious on the teeth only. These organisms have a chemical power of changing the secretions left in the mouth into certain acids and ferments. It is within a short time only that the decay has been shown to be caused by the decalcification of the tooth substance, followed by a solution of the decalcified base-substance. This is brought about by these acids, among them chiefly lactic acid. These acids are principally formed by these organisms. Leyden and Jaffe found that the *leptothrix buccalis* bacteria, which also inhabits the mouth under certain causes, has given rise to severe lung troubles. Also, that from a class of bacteria found in bad teeth, abscess of the neck, abscesses at the root of teeth, chronic disturbance of digestion, both of stomach and intestinal, abscess of the tonsils, diphtheria, all kinds of pharyngeal inflammation, and other parts closely associated.

That there exists in the human mouth such bacteria that produce malignant forms of disease is now proved beyond a doubt.

These bacteria may remain there latent until such a cause presents itself for cultivating in a medium suitable for their existence, as, for instance, in the drawing of a tooth, where a fresh wound is left, and also the fact that it has

proved dangerous to scratch one's finger on a sharp tooth in an unclean mouth, etc.

Now, how should we prevent these bacteria and micro-organisms from developing? What is the course to be pursued?

Above all, every carious tooth must either be sealed by a filling or extracted. Diseased tissues, such as enlarged tonsils, catarrhal affections, post-nasal vegetations, etc., should be attended to. The tooth-brush, above everything, must be used vigorously by all children and adults after each meal. These are the first rules to be observed.

In order to destroy these organisms, a powerful antiseptic must be used, and such a one must be strong enough and possess a non-poisonous quality; also by its use be able to destroy these organisms which breed in the mouth. We know that children always swallow some of the liquids used during the act of either gargling, rinsing or douching of the mouth.

The zymocide is the newest of the non-poisonous antiseptics. It is entirely free from poisonous vegetable or mineral chemicals, and, therefore, no danger can arise from absorption through the mouth, wounds or stomach, etc. Ready for use as a mouth-wash, dilute from ten to twenty parts to that of water. This new antiseptic and detergent preparation, represents the latest advancement in chemical sciences and pharmaceutical skill. It is composed of extract golden seal, extract calendula, stone root, sulphocarbolate of zinc, extract witch-hazel, boracic acid, thymolate of soda and menthol. It is manufactured by Reed & Carnrick, whose preparations are already known to the profession as reliable.

Another very important antiseptic is the peroxide of hydrogen (medicinal—Marchand's), which is already known to us. This is to be used in the mouth, diluted one to three of water. Such substances as carbolic acid, chlorate of potash, salicylic acid, corrosive sublimate, creolin, etc.—these are all poisonous substances and deleterious to the teeth; besides taking into consideration the great possibility of poisoning by long-continued use of these chemicals.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

*Stated Meeting, February 11, 1892.*WILLIAM P. NORTHRUP, M.D., *Chairman*, F. M. CRANDALL, M.D., *Secretary*.

Spina Bifida.—Dr. A. Jacobi presented a baby two months old, with spina bifida, for the purpose of eliciting some remarks from those who had had experience in the treatment of such cases. It was the fourth child. The other three were normal. When this child was born a small flat tumor was noticed over the lumbar spine. There was a little oozing, probably of pus due to irritation. Soon after birth the tumor had become dry. It had since steadily grown; had become oval; only at the outer edge was there still some normal skin, over a considerable area at the centre the covering was thin and glistening, and was evidently composed only of dura and pia mater. Perforation might be looked for any hour. This would result in an escape of the cerebro-spinal fluid, drying out of the spinal cord and meninges, and of the brain. Death would be likely to take place within twenty-four hours after rupture. The head in this case was perhaps larger than usual; the cranial bones were normal except that there was a greater space between them than usual, the anterior fontanelle measuring probably three inches and-a-half. This showed there was insufficient bony deposit over the brain as well as over one point in the cord. There seemed to be absence of only one spinal process. There was likewise marked talipes valgus on both sides, and the legs showed want of development from the knees down. Evidently want of proper innervation of the legs had dated well back in embryonic life. The process would seem to have been akin to the anterior poliomyelitis which sometimes comes on in early childhood, resulting in limited paralysis with subsequent muscular atrophy.

Dr. Jacobi went on to say that spina bifida showed itself in two forms. The first was where the cerebro-

spinal fluid accumulated under the meninges outside the cord and caused them to protrude through an aperture in the spine. The second and more important form was where the spinal cord itself was dilated and contained an over-secretion of fluid. In such cases one could often produce convulsions by pressure on the tumor which, through the medium of the fluid; compressed the brain.

Operations had been performed with success in a number of cases, but probably many more had resulted fatally than had been reported. Puncture had been made, with or without pressure; compression had been made alone; radiated incision had been made and sewed up again; the whole sac had been ligated; Lugol's solution had been injected, also a solution of iodide of potassium and glycerine.

The chairman remarked that he had a few days ago made some sections of a cord where was found a tunneling of the cord extending up to the brain, independent of the central canal, which latter was present in normal size. The case would be reported in full on another occasion.

Pulmonary Percussion Note. Demonstration. Dr. Mary Putnam Jacobi demonstrated a point brought out in her paper at the previous meeting (ARCHIVES OF PEDIATRICS, Feb., 1892). Two lungs were exhibited in which it was shown that there was a tympanitic percussion over the collapsed lung, and normal resonance over the distended lung,

Discussion on the Management of Diphtheria. The Best Disinfectants, and Best Apparatus for use in Nose and Mouth Treatment.—Dr. Joseph E. Winters read the first paper, which, like the rest, was brief, being limited to ten minutes. He said that in recommending any plan of local treatment of diphtheria he assumed general acceptance of the fact that the disease was caused by the Klebs-Loeffler bacillus. It was primarily a local disease, caused by the microbe named, attended by a deposit of pseudo-membrane, and the production of a poison which on entering the circulation produced constitutional symptoms. The germ itself never invaded the blood, and a point of vast

importance in the treatment was the fact that it never caused diphtheria without previous local lesion.

The primary indication was not only to disinfect the parts, but also, so far as possible to destroy the germs. If in an initial attack the parts could be kept clean and antiseptic the development of the germs would be impeded and blood poisoning to a great extent be prevented. One should avoid in treatment causing irritation at other points, otherwise the spread of the germs and diphtheritic deposit would be encouraged. Moreover, such measures should be employed as would add least to the depression caused by the disease. Whatever was done should permit throughout of the recumbent posture. He condemned without hesitation the practice of placing the child in the arms of an attendant, and then, during its struggles, attempting to make local applications.

The object of local treatment was to disinfect the site of the morbid process, and to prevent sepsis. This could be done effectually only by irrigation. The infant should never be placed in a large bed, but in a crib where it could easily be got at. Before treatment the patient should be placed at one side of the crib, clothes and bedding should be protected by a rubber sheet, there should be a vessel for the fluid to run into. The irrigation should be made with the child in the horizontal posture; it could be made more effectual and less resistance would be encountered if the fluid were introduced into the nose instead of into the mouth. It would be discharged through the other nostril or mouth. In rare instances it might be necessary to syringe through the mouth, in which case the medium soft rubber tube should be carried alongside the cheek to behind the last molar tooth. The disinfection should be made every two hours, or in bad cases where the deposits reaccumulated rapidly, they should be made every hour day and night. He preferred a ten per cent. solution of peroxide of hydrogen, or a saturated solution of boracic acid. As a syringe he preferred the Davidson with a proper tip for introduction into the nose, and for mouth-syringing he put on the end a suitable piece of rubber tubing. The

first syringing at least should always be done by the physician. Mention was made of the steam atomizer, of the spray, of vapors of oil of eucalyptus and turpentine in the room, but the author laid principal stress on nasal or mouth irrigation, and on another measure which he proceeded to mention. Some years ago he had read a paper in which he spoke of the value of sulphurous acid gas in the room of one sick with diphtheria, stating that it relieved the feeling of dryness and swelling much more than any other agent. His own experience while suffering with diphtheria had proven this, and recently he had had corroborative evidence of a physician in Newark, who had made use of it while suffering from this disease. Patients experienced comfort when the strength of the gas was so great that attendants had to leave the room because of the irritating effect. The gas was more efficient in causing exfoliation of the diphtheritic membrane than any other agent. It was generated by burning sulphur candles.

Quarantine and Disinfection in Tenements and Small Apartments; precautions for other members of the family.—Dr. H. D. Chapin read a paper on this subject. The parlor, he said, was usually the only room unoccupied by other members of the family. The child should be placed in this room in a crib which could be destroyed or readily disinfected; not in a bed or on the sofa. A sheet wet in some disinfectant might be hung across the door opening into other rooms, which would act as a danger signal if it did not kill or prevent the spread of germs. The mother should wear a loose wrap in the sick-room, cast it aside on going into the other rooms. The room should be kept warm enough to permit of lowering a window somewhat. Some authorities thought they had seen benefit from a vapor of oil of eucalyptus, turpentine, etc., in the room. Recognizing the Klebs-Loeffler bacillus as the cause, which was local, care should be exercised to prevent exposure of an unnecessary number of articles to which the disease germs might adhere, such as pictures, books, clothes, etc. The disease, it should be remembered, was both infectious and contagious, although conta-

gious only in a restricted degree. Cheese-cloth or old clean linen should be used instead of handkerchiefs, and be immediately burnt. A local disinfectant should be employed, but not strong enough to be irritating. Bichloride of mercury or boracic acid in solution was recommended. Bed clothing, and other clothing should be soaked in zinc solution, and exposed to the sunlight and air on the roof of the house, for sunlight and air were the best and most harmless disinfectants known. Furniture and walls should be washed with carbolic acid, 1 to 20, or corrosive sublimate solution, 1 to 2000. The same might be used to flush the sinks. While bacteriologists doubted whether sulphur fumigation destroyed germs, it tended to sweeten the room, and caused subsequent free ventilation. If possible, the remaining children in a small apartment should be taken away temporarily, and he recommended that the city build houses of refuge. Children remaining in the house should have the nose and mouth irrigated with a solution of bichloride or of boracic acid, and should take tincture of chloride of iron.

Methods of Forced Feeding.—Dr. L. Emmett Holt said: In a disease like diphtheria, where the principal cause of death is asthenia, or exhaustion, no question can exceed in importance that of nutrition and stimulation.

We may not be able to quell the storm, but in a very large number of cases we may act the part of the intelligent pilot who guides the ship through the storm safely into the harbor.

The greatest difficulties were met in children under three years of age. The most common mistake which he had seen made, and which he believed he had sometimes made himself, was that of over doing the matter, both of feeding and stimulation in the first few days of the disease. As a consequence, it happened only too frequently that when the critical period of the illness came the overburdened stomach struck and refused to do anything.

The points which he wished to make might be grouped under three heads: (1) Character of food and stimulants; (2) Frequency of administration; (3) Forced-feeding.

As to the character of the food, little need be said except in condemnation of two articles often allowed, namely, ice cream and jellies. In his experience these interfered with taking more valuable food. The main reliance must be upon milk. The addition of a little cocoa was not objectionable if the child preferred. Next to milk were beef broth, mutton broth, expressed beef juice, soft-boiled eggs, milk toast, wine whey, oatmeal or barley gruel, junket, which might be given cold with a little wine added; kumyss, for children who took it well, but most did not.

Brandy was the best stimulant, but one should be guided by the child's whims and use whatever it would take best. Stimulants should be well diluted, best with mineral waters. If stimulants were badly taken, it was a mistake to mix them with food, since, although this might succeed a few times, the child would soon refuse everything.

As to quantity and frequency, extensive experiments in stomach-washings had proven to him conclusively that a child's stomach was rarely empty sooner than two hours after feeding. He thought we should not give food requiring digestion at shorter intervals than this. But stimulants and predigested foods might be allowed at shorter intervals. The quantity should be less usually than what the same child would take in health.

Regarding stimulants, in his experience, one should not begin with them until it was indicated by the pulse and prostration. Then they should be pushed until the desired effect was produced, the only other limit being the tolerance of the stomach. Unlike food, they were best given in frequently repeated doses. He thought it best to decide on the amount to be taken in the twenty-four hours, and let the nurse give it when she could rather than give a definite quantity at definite intervals.

A careful record should always be kept of the amount of food taken and retained.

Forced Feeding.—It happened that in quite a large number of severe cases after the fourth or fifth day, sometimes not before the tenth day, that the child absolutely refused

all nourishment and stimulants. An immense amount of strength was wasted and little was accomplished in trying to feed such a child by the spoon. It was at this juncture that the question of forced feeding arose. That which most physicians had resorted to was rectal-feeding, but in Dr. Holt's hands this had been very unsuccessful, and in young children he now never thought of resorting to it. The slightest amount of rectal irritation was sufficient to cause the child to relax the sphincter and allow the whole quantity to come away. Rarely could the second, and almost never could the third injection be retained.

Much more efficacious and with far less disturbance to the patient, was forced-feeding by the mouth or nose. The difficulties in the way were surprisingly small. The ordinary apparatus for stomach-washing was all that was required. The preferable position was on the back. In his experience the milk or other food had rarely been vomited; the mouth was to be chosen instead of the nose in most cases, unless there was much resistance. A trained nurse could with little practice do the feeding, with the assistance of one person to hold the head. Completely peptonized milk or kumyss had been used most by him. If repeated once in four hours a proper amount of nutriment could be introduced with far less worry and disturbance than attended spoon-feeding. Stimulants could be mixed with the food.

Constitutional Treatment in Diphtheria.—Dr. A. Jacobi made some verbal remarks upon this subject, and referred to an article which he had read at the last International Medical Congress for a fuller expression of his views. The remarks of Dr. Winters on the local treatment of diphtheria met with his full approval, and while he had frequently given expression to similar views, he wished again to put them on record, since it was only by constant repetition that a recommendation passed into general practice. Corrosive sublimate was used by himself internally, and also by many other physicians, and in children suffering with diphtheria it showed very little tendency to produce any stomatitis or diarrhœa. It was administered in very

small doses, largely diluted, at frequent intervals. Dr. O'Dwyer was using calomel by evaporation in one of the public institutions, with much benefit. Ten grains were evaporated slowly, say within ten minutes, under a tent. This was repeated once in three hours. While irrigation with solutions of boracic acid, or peroxide of hydrogen, etc., were so useful, yet it should be remembered they might cause irritation and in that event unless stopped, or more diluted would do harm. He had seen one child on whom peroxide of hydrogen had been used, which showed local irritations due to the remedy, and which got well within twenty-four hours after it had been discontinued.

Where sepsis had developed, it could be got rid of only by elimination, and it was necessary here to keep up the child's strength. Too often the case was allowed to run along until the pulse had gone up very high, and prostration had become marked. Then it was too late to give one's remedies. The stomach would not accept them, and if they were given hypodermically it still refused to digest food. In administering drugs in diphtheria, one must be guided in the amount by the effects, and not by their effects in other diseases, or by what the pharmacopœia stated. These remarks applied to digitalis, camphor, ammonia, salicylate of caffeine, benzoate of soda, nitroglycerine, or whatever stimulant it might be thought advisable to administer in the given case. Do not waste time for results to follow administration by the stomach in severe cases, but resort to hypodermic medication.

Sub-membranous Injections.—Dr. A. Seibert had the past year and-a-half treated diphtheria when limited to accessible spots by sub-membranous injections of chlorine water, stronger than the officinal chlorine water. The theory was that the disease was at first local, due to a germ which could be destroyed, or its spread could be prevented by this means of local antisepsis. Chlorine water injected in this way was non-poisonous, going into chemical combination with the surrounding tissues. He had a special syringe with a number of needles made for

this purpose. He had lost only one case of diphtheria in a year, in that one the patient was not seen until the fourth day, and had already pronounced constitutional symptoms.

A general discussion followed. Dr. Beverley Robinson had observed that fluid injected into one nostril came out through the same or other nostril, and not through the mouth, which was somewhat different from the experience of Dr. Winters. Dr. Winters added that a part sometimes came out through the open mouth. Dr. Vineberg confirmed Dr. Jacobi's recommendation, to use one's stimulants for the effects rather than be guided by the regulation dose. Dr. J. Lewis Smith had observed treatment by peroxide of hydrogen in the hands of several physicians, and it was true that when used undiluted it was liable to set up irritation. He advised its dilution one-half with water for the mouth, two parts water when used in the nose. Dr. Winters said he had not modified his statement as to the use of a ten per cent. solution, because he had always given it by the nose, not by the mouth. But Dr. Holt asked the gentlemen whether they had injected as strong a solution as ten per cent. of the peroxide of hydrogen into their own nostrils. Personally, he had found that strength irritating and quite disagreeable. Dr. J. Lewis Smith said regarding the vapors of oil of eucalyptus, turpentine, and carbolic acid, that in his experience this tended to prevent further infection, was protective to the attendants, and in harmony with the observations of an Australian physician. He had found that where used, the patients were less likely subsequently to have diphtheritic paralysis. He had not had a patient with diphtheria show diphtheritic paralysis in five years. The chairman thought we had a right to be skeptical about preventive or protective measures recommended by different physicians when those measures were not in keeping with our present view of the ætiology of diphtheria; that is, that it is due to the Klebs-Loeffler bacillus; consequently, it would appear that the disease was spread more by fabrics, clothing, furniture, toys, etc., than by

germs floating in the air, or by sewer gas. Dr. O. B. Douglas had other children of the family spray one another with a solution of carbolic acid and lime water, by way of sport. Dr. Smith again speaking of methods of prevention, said that Grancher, of Paris, had stated that in a hospital there where a great many cases of diphtheria had entered during a number of years, that during the same time 153 cases erroneously diagnosticated as diphtheria had also been brought in, yet not one of these had contracted the disease in the institution. The preventive measures adopted there were to surround the bed of the sick patient with a metallic screen, the use of a solution of sodium bicarbonate on the patient, disinfection of nurses, etc., by corrosive sublimate solution, of clothing by heat. Attendants wore blouses which were disinfected every day. Dr. Smith also cautioned against standing in front of the child when examining the throat. As a like precaution, Dr. Allen recommended the interposition of plain glass between doctor and nurse, as was employed in Vienna. Dr. Stowell spoke of the efficacy of peroxide of hydrogen in dissolving the diphtheritic membrane. Dr. Berg thought a chief cause of spread of diphtheria was failure on the part of the Board of Health to notify schools soon after the physician had sent in his report.

Dr. Fischer had collected germs in the air of rooms where diphtheria existed, and in adjoining rooms, some of which were the Klebs-Loeffler bacilli, others of a different nature. Culture tests were made, and animals had died with the usual symptoms. This had occurred in tenements where the disease broke out successively on different floors, and was seemingly spread by way of the sewer pipe leading up through the house. On the other side of the hall diphtheria did not break out. The Board of Health was making a study of these cases at his request, and a report would be made later. It was premature to say that the germs of diphtheria could not spread the disease by dissemination in the air, and especially in air contaminated by sewer gas.

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

A Review of the Latest Treatment of Diphtheria in Paris Hospitals—Artificial Maternities—Influence of the Epidemic of Influenza on Births in Paris—Statistics of Infants Placed out to Nurse in Paris—Some Interesting Medical Observations on the Number Seven.

A Review of the latest treatment of diphtheria in Paris hospitals.—We propose in this communication to simply sum up, as briefly as possible, the present state of the French methods of treatment used for diphtheria, as we have seen it during this year. Before giving the therapeutical methods used we must explain the reason of the present treatment. It will be remembered that Klebs, in 1883, discovered the diphtheria bacillus, and Loeffler isolated and cultivated it later on. Roux and Yersin since have succeeded in reproducing the false membrane in animals, and have shown the toxins that the micro-organism deposits in the cultures. From the above studies it is admitted in France, 1st, that diphtheria is a microbial disease and that the bacillus is found in the exudations.

2. That the membranes when they receive the microbes are filled with the toxins that they secrete, and that this poison penetrates the organism, unless arrested.

3. The microbes only develop on an inflamed surface or one that has lost its epithelial coating.

4. The bacillus has great vitality and keeps for a long time.

Besides these facts a Moscow doctor has been recently making experiments by inoculating erysipelas in diphtheritic patients and curing the disease in this way. It is possible that in this way we may be shortly in possession of a vaccine matter for diphtheria, as we have for small-pox, but putting aside this interesting question for the moment, from what we already know of the cause of this disease we may formulate the following general principles for its treatment:

1. We should attempt to destroy the focus of infection by antiseptics.

2. We should prevent the mucous membrane from being injured, so that we shall not leave an opening for the bacillus to enter.

3. We should give the mucous surface every possible help to prevent not only, the micro-organism from entering it, but also to enable it to eliminate the toxins that are secreted by the bacillus.

We will now give the various treatments used in Paris hospitals:

Dr. Jules Simon.

R Acid Salicylic, 0.60 centigrammes;
 Infusion Eucalyptus, 60 grammes;
 Glycerine, 40 grammes;
 Alcohol, 15 grammes;
 M.

Sig.—Every two hours the following procedure is put into force: Two of Péan's long pincers are taken and the ends wrapped around with a wad of antiseptic cotton, with the first one the throat is carefully cleaned out, *without wounding the mucous membrane*, then this solution is applied with the second one; afterwards all the cotton used is burned and the instruments are washed in boiling water. No carbolic acid is used in these wards.

In the intervals of using this external application, an irrigation of hot borated water is used freely, (four per cent. borax) if the child is old enough he can be made to gargle with this solution. A spray is kept going in the room of thymol solution, more to keep up a certain humidity than to act on the disease itself. When possible Dr. Simon advises to change the child into another room during the day, or else use inhalations of oxygen gas. Port sherry or any good form of alcohol is given often, and three to six drops of the perchloride of iron, in a little water, is added to the internal treatment. No milk, gummy solutions or metal spoons must be used when giving the iron. If the patient is five or six years old Dr. Simon adds a preparation of cubebs and copaiva, but he does not use opium in any form.

Dr. Gaucher's Treatment.

R Camphor, 20 grammes;
 Olive Oil, 15 grammes;
 Alcohol at 90°, 10 grammes;
 Ac. Carbolic, (Crist.) 5 grammes;
 Ac. Tartaric, 1 gramme;
 M.

Sig.—Dr. Gaucher used a rough brush with this solution and does not fear to even take off the false membrane, claiming that he cauterises it. Great care must be taken with this solution that none of it is dropped into the mouth or larynx. This is applied every night and morning, and every two hours an irrigation of the throat is made with a one per cent solution of carbolic acid. (This is a very painful treatment.)

Dr. Legroux, of Trousseau Hospital, used :

℞ Glycerine, 20 grammes;
Alcohol, 10 grammes;
Creasote, 1 gramme;

M.

Sig.—Applied on a brush, twice a day; besides this a spray is kept going of creasote, 100 to alcohol 1000. In very serious cases M. Legroux does not hesitate to use hypodermic injections of

℞ Aseptic Olive Oil, 150 grammes;
Creasote, 20 grammes;

It is claimed for this treatment that it has also a preventive action on broncho-pneumonias that may succeed tracheotomy.

Dr. Legendre's Treatment.

℞ Naphthol, 5 grammes;
Alcohol, 5 grammes;
Glycerine, 100 grammes;

M.

Sig.—Used on a wad of cotton several times a day. Also the following for irrigation:

℞ Naphthol, 0.20;
Water, 1000;

Dr. Hutinel (at Hôpital des Enfants).

℞ Terpene hydrate, 8 grammes;
Hydrarg. bi-chlor., 0.30 centigrammes;
Ess. Mint, 100 grammes;
Alcohol, 100 grammes;
Ess. Thym., a few drops;

M.

Sig.—Used on cotton wad, as the others. This is followed by irrigations every two hours of hot borax water, and an internal treatment of three to twelve grammes of sodii benzoat.

Treatment by sulforincinated carbolic acid.—This is the latest and newest form of therapeutics for this disease. Carbolic acid has already been tried mixed with various oils and turpentine as well as camphor, but the preparation of castor oil, as made in the above pharmaceutical solution, seems to have met an indication that is of great importance in the use of carbolic acid on mucous membranes. It does not irritate the pharynx, and it is not painful; it also adheres to the mucous membranes. A solution of this kind is used:

R Acid. Carbol., 10 grammes;
Sodii sulforincinat., 90 grammes;
M.

This is put on wads of cotton and when applied to the pharynx it is not washed off by gargles or irrigations, but allowed to stick to the mucous membrane and penetrate it as much as possible. Professor Grancher, Dr. Cadet de Gassicourt, and Dr. D'Heilly are now using this preparation, and much is hoped from it.

From the above it would seem that no uniform method of treatment is to be recommended for diphtheria. Infants should not be treated by the same method as adults, because certain drugs, as carbolic acid, etc., may be poisonous in the first. A combination formula in use in Children Hospital at Nice is varied as follows:

R Glycerine, 30 grammes;
Acid. Salicyl.,
Terpine (or } aa 60 centigrammes;
Creasote), }
Alcohol q. s. to dissolve;

S. This is used locally; but since the introduction of the sulforincinates the following is being tried:

R Sodii. Sulforincinat., 80 grammes;
Salol, 10 grammes;
Creasote (or Terpene), 2 grammes;

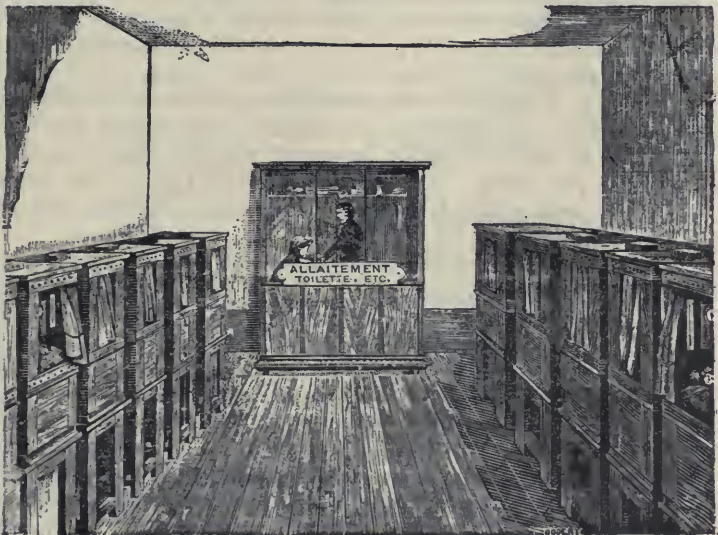
S. Apply to the membrane and throat every three hours.

The atmosphere of the sick-room should be kept humid with a spray. Dr. Hutinel and almost all the French physicians use borax solutions (about three per cent.).

In Nice and in the south it is the habit to keep a common pottery pot on the fire with water and thymol, or else simply some of the eucalyptus tree leaves in the water, keeping it slowly boiling and allowing the steam to pass into the room constantly.

As to general treatment, the tonics such as kola, cinchona, etc., and some good wine are constantly given; fluid foods are used, and if the child does not take its regular meals, rectal alimentation is at once resorted to with peptonized foods. It is hardly necessary to mention that careful antiseptic precautions are always taken, bichloride mercury solutions being used on linen, and in water closets and all dejections, while borated solutions are used by the whole family, as well as the nurses, whose faces and hands are constantly to be washed with the solution. The patient's hands and face is also washed with borated water often. Before leaving the subject of diphtheria we should like to mention a theory of Dr. Mengéaud's, of Nice, as to the action of antiseptic substances on mucous membranes. He thinks that there is a purely *physical* action, as well as the antiseptic one. This he shows by an experiment, as follows: 1st. "I placed in an endosmometer (Dutrochet's) a solution of creasote and closed the tube by a piece of intestine, and also on the top of it a portion of the mucous membrane of a steer, lately killed. As soon as the tube was plunged into water, it was noticed that the water mounted rapidly into the tube, while the creasote passed very slowly into the water." The reverse experiment was made and water put in the covered tube, which was plunged into a solution of terpene and creasote, and the water passed rapidly into the solution while it was a very long time mounting into the tube. Dr. Mengéaud, from his experiments, concludes that a strong current passes through mucous membranes from the water to these solutions. He thinks that the same phenomenon takes place in the mucous membrane of man, and when we rub the creasote solutions on the pharynx that the liquid part of the blood in the sub-mucous vessels passes most rapidly outwards, and thus prevents the rapid penetration of the toxins into the organism.

Artificial maternities.—A number of the towns in France have been studying measures to prevent the steady decrease in population in the country, and have adopted one notion that may have its application, if extended to other places. It is to prevent the death of the children born before term by establishing artificial maternities, where the



use of the hatching machine, or "*couvuse*," could be given to the public at a small rate, or for nothing, depending on the case. Some of the cities, like Marseilles, have had a meeting of the city councils, and have passed laws regulating such establishments, and have voted certain sums towards their maintenance, and charitable persons have been asked to contribute towards them, not only as a charity, but also as a patriotic saving of soldiers to the country. An automatic *couvuse* is used, based on Dr. Auvard's model, which has been improved. Each room of the place used may contain a dozen of the hatching machines, and one or two attendants can attend to the children placed in them. Above is a view of one established at Nice, and one of the *couvuses* used. It is hoped in this way to save many infants born before term, belonging to poor people who either could not, or would not, provide such treatment. It is also thought that, raised in this way, away from the hospitals, such children will have a better chance than when put into such apparatus in the obstetric wards of the hospitals, as at present.

Influence of the epidemic of influenza of birth in Paris.—Dr. Roeser calls attention to the fact that if one examines the record of births and deaths in Paris during the last few years, it will be found that a very considerable and sharp fall will be found during the time that the influenza epidemic was raging. In the forty-first week of 1890 the births were only 787, which was lower than it had been for at least five years. As a rule the birth rate of Paris per week is always over 1,000, and is often 1,200, and more. This fall in the birth rate continued all the four months that the influenza continued, and when the epidemic was over it rapidly mounted to the normal number of births per week. During the war of 1870-1 the same decrease was noticed, and also when the cholera was in Paris in 1854-55.

Statistics of Paris infants placed out to nurse.—Of 13,830 children, without distinction of sex, the general mortality in the first year was 27.52, or of the 13,830, at the end of one year there was only 10,161 left. Taking again 14,094 children under the same conditions, it was found that in two years the mortality was 28.07, so that at two years of age only 10,128 were left. The infants of Paris that were placed out to nurse in 1885 were studied as to the number of days they were presented at the various offices, where their daily presence is registered, and it was found that the danger of the child dying was so much

greater as it was given out to nurse near its birth, or not: for instance, if it was given out in the first week up to the first month, the danger was very great. They died very rapidly when given out young. The real lesson from the large number of statistics studied was, that a baby ought to be brought up by a wet nurse for at least a month if possible; and it would be better for its chance of living, if it was not put on the bottle before the 90th day of its life, or at three months.

Some interesting medical observations on the number seven.—At seven months a baby can live. If an infant breathes freely seven hours after birth it will live. On the seventh day the remains of the umbilical cord will come away; at twice seven days a baby sees light; at three times seven it sees all objects and follows them with its eyes; at seven months its teeth come; and at twice seven months it should commence to walk; at three times seven it should talk; and at four times seven it walks alone; at seven years old its second set of teeth come; and, at twice seven years the males have a show of beard; at three times seven years the body has its full growth; and at four times seven years it has its fullest strength, which continues until five times seven years; at six times seven years strength and health diminishes as a rule; and at seven times seven we are at our full maturity; at ten times seven life begins to be a burden; and those who live long at twelve times seven, or the 84th year, reach the maximum of life.

— *Formula used for painful gums in children:*

R Cocaine hydrochlor, } aa 10 centigrammes;
 Camphor, powd., }
 Glycerine, 10 grammes;
 Essence of mint q. s., to flavor;

M.

S. Rub a little of this on gums with finger.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Johnson: Thyme in the Treatment of Whooping-cough. (*Four. de Méd.*, October 6, 1891.)

The author thinks that *thymus vulgaris* is the best remedy that has yet been used in the treatment of whoop-

ing-cough. It not only shortens the duration of the disease, and moderates the violence of the paroxysms, but it also prevents the development of inflammatory symptoms. Its value was well shown in the course of an epidemic in 1888. Given in large and frequent doses, most of the cases which were treated during this epidemic were cured in fifteen days. In one or two days the painful symptoms disappeared, but they recurred if treatment were suspended sooner than the fifteen days mentioned. The author used the drug in the form of an infusion, 30 to 50 grams being placed in 700 grams of water. In some cases such an infusion will not be sufficiently concentrated and another author has suggested that 100 grams be placed in 700 grams of water, 50 grams of syrup of guimauve (or some other simple syrup) being added. The dose of such a mixture should be a teaspoonful to a dessert spoonful eight to twelve times daily. No harmful effects have been observed after such treatment, with the exception of a mild diarrhoea. The *thyme* should always be used in its fresh state. It is probably the *thymol* of the plant which is the active agent in producing the desired effect.

Martin: Curative and Hygienic Treatment of Non-diphtheritic Angina. (*Jour. de Méd.*, September 6, 1891.)

The treatment of diphtheritic angina involves a choice of the means which may be effectually used. Hydrofluoric, salicylic, or carbolic acids, corrosive sublimate, oxygenated water, perchloride of iron, essence of turpentine, all have for their object the disposal of the exudate, which has formed and the destruction of the bacilli which grow in them. In all cases of this condition it is necessary to act as rapidly as possible and to destroy by antiseptic agents, the bacteria, whose secretions, as Roux and Sersin have shown, transform an affection which is primarily local into a general intoxication. To the foregoing propositions there is no dissent, but there is not the same degree of harmony as to the best methods to be used for the other simple anginas, including also the catarrhal, erythematous and tonsillar forms. Acute angina is, however, an affection, the pathogenic expression of which the physician can never afford to ignore. Its presence during the prodromic period of several general diseases, grippe, measles, scarlatina, and typhoid fever, its appearance in connection with, or at the same time, with anginas which are manifestly diphtheritic, its febrile reaction which is always severe at the beginning, the general weakness, and at

times, the paralyses which follow it, are reasons which favor the idea of its infectious nature. The occasional infectious and epidemic character of amygdalitis, has been demonstrated by Bouchard, Jasiewicz and Dubousquet, Kelsch, and others. Under the action of heat and cold germs which were innocent enough in the saliva, and which, under ordinary conditions are prevented by phagocytosis from penetrating the tissues, may enter the circulation of the pharynx, lung, and pleura, and produce harmful effects. These considerations induced the author to adopt a course of treatment different from that which he had formerly used. In all acute diseases of the pharynx he decided to abandon the customary agents, emetics, emollient and astringent gargles, and use only antiseptics. Even in acute coryza, which is often due to infection, in gingivitis and dental periostitis he has seen better results from irrigations with boric acid solutions than from the use of narcotic and astringent decoctions. For the angina he has made applications three times a day with a mixture containing one grain each of crystallized carbolic acid and camphor and fifty grams each of glycerine and distilled water. This treatment should be continued three days, at the end of which time he has found his cases cured. This treatment acts both mechanically and antiseptically. The dysphagia which accompanies angina, whether diphtheritic or not, may require the use of such agents as salicylate of soda, antipyrine, acetanilide, phenacetine, and exalgine. These may be used in sufficient quantity internally, while locally one may apply at the time of eating a five per cent. solution of cocaine. A table of 160 cases is given in which this treatment was carried out successfully. In none of the cases did gangrene, suppuration, or adeno-phlegmon result. As important as treatment is, the subject of prophylaxis for the diseases which are under consideration. The following measures are suggested for cases in which anginose conditions are suspected or are imminent :

1. The mixture referred to may be applied to the tonsils and pharynx upon absorbent cotton, the same as if the disease were actually present.
2. All sputa from patients who are under treatment must be carefully disinfected, the vessels receiving the sputa being also disinfected.
3. Those who are suffering from angina, however simple the case may seem, should be completely isolated as long as any suspicion of the disease remains.

After a patient has left the sick-room the latter should be disinfected, together with all its furniture and clothing.

In a word, the entire plan of treatment should be as thoroughly antiseptic as if it were a diphtheria and not a simple angina which was being treated.

Mercaut: The Treatment of Diphtheria. (*Anales de Gin. Obst. y Ped.*, July, 1891).

If the false membrane is not dense, the following formula may be used :

℞ Syrupi Simp	70.-80. grams ;
Potass. Chlor.	2. "
Fer. Perchlor.	
Aquæ Rabel. aa.	3. "

Sig.—A teaspoonful every two hours.

For local application the following is recommended :

℞ Aquæ Rosarum,	200. grams ;
Helenine,	1.-2. "
Acidi Carbol. dil.	1. "
Glycerinæ,	30. "
Tinct. Menth. Pip.	gtt. viii.

M.

The following may also be taken :

℞ Aquæ Melissæ,	100. grams ;
Quin. Sulph.	1. "
Syr. Amygdal. Amar.	50. "

M.

Mixture number two may be sprayed upon the fauces for several minutes, the membranes being loosened thereby and the buccal cavity moistened. Then a teaspoonful of the first mixture may be taken in a sufficient quantity of sherry wine, and this may be followed by a similar dose of the quinine mixture. In two hours this treatment should be repeated. In cases in which the glands of the neck are involved, mercurial ointment should be applied. Ipecac may also be used internally if relaxation of the tissues is indicated. The false membrane should be gently removed with the forceps if it can be thus removed. This treatment should be continued three or four weeks. More than thirty cases have been treated in this way by the author with satisfactory results.

II.—MEDICINE.

Cnapf: Icterus in the New-born. (*Rev. Mens. des Mal. de l'Enf.*, October, 1891.)

From a pathogenic point of view, two forms of this disease must be distinguished, the acute and the chronic. Basing his opinion upon his own observations and also upon the investigations of Silbermann, Naunyn, Minkowsky and Affanassiew, the author rejects the theory of a purely hæmatogenous origin for acute icterus, and believes that in all cases there is some disturbance in the liver itself. The new conditions of vitality, which are created by the establishment of respiration, the changes which take place in the circulation, etc., cause a decided change in the condition of the corpuscles, an excess of pigment in the liver, and then biliary stasis and resorption. With reference to chronic icterus, the researches of Gubler, Trousseau, Schüppel, and the author show that it is sometimes due to congenital faults in the formation of the bile ducts, and that it may also be due to acquired lesions of the hepatic tissue and biliary passages. Such lesions are very frequently the result of syphilitic inheritance.

Remy: Gastro-intestinal Hæmorrhage in the New-born. (*Rev. Mens. des Mal. de l'Enf.*, October, 1891.)

Two cases of this character are reported, and there is also a study of certain accidental hæmorrhage with local causation. They occur in children who are usually normal in appearance, they have little or no tendency to recurrence, and may be followed by complete cure. The quantity of blood lost varies; there may be only a single discharge, or there may be several, the quantity lost being sufficient to cause death from acute anæmia, or from the weakness which follows the accident. Hæmatemesis alone rarely occurs. There is most frequently a discharge by the mouth and rectum, or by the rectum alone. In one of the author's cases, intestinal hæmorrhage occurred the day after birth, and in the other, hæmatemesis, which was followed on the next day by a large intestinal hæmorrhage. Both children recovered. These cases followed the rule that such hæmorrhages usually occur within thirty-six hours from birth. Such bleedings are probably due to new conditions of the circulation in the walls of the stomach and intestine, the circulation being more active than during foetal life. For treatment the author recommends a warm bath at 38° C. This was efficient in his case in which the hæmorrhage recurred.

Baumel: Impetiginous Eczema of the Face and Hairy Scalp as an Accident of Dentition. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

One-fifth of all the cases of infantile disease seen by the author in his clinic for children's diseases during the year 1889-90, were cases of impetiginous eczema. The disease may not be strictly limited to the face and hairy scalp. It first appears in the form of papules, and these quickly develop into vesicles, from which a watery fluid exudes, this being followed by the formation of crusts. The intense itching results in inflammation of the skin, possibly in abscess and hæmorrhage, the surface having a red or even a black appearance. Though the skin may be ulcerated, no scars result in the majority of cases. Some authors deny that this disease has any relation to dentition, but with this opinion the writer of the paper does not agree. He thinks it is largely limited to the face, as the results of the irritation of the trigeminal nerve, which is also the source of sensation for the teeth. The irritation of the skin is a reflex of the irritation which the nerve experiences when dentition is in progress; in the same way there may be eczema of the nucha when the secondary dentition is in progress.

The intensity of the disease frequently depends upon the rapidity of the evolution of the teeth, being subject, like many other diseases, to remissions and recurrences. In some cases there seems to be a kind of monthly periodicity in its recurrence, which has suggested that with nursing children the recurrence of menstruation in the mother might have a bearing upon the condition. The intensity of the disease may also be influenced by the presence or absence of other diseases. Should an acute disease develop, the eczema may disappear within twenty-four hours. This fact has been observed in cases in which broncho-pneumonia, diarrhœa and gastro-enteritis developed. A frequent complication of eczema is to be observed in engorgement of the cervical glands, and this may result in suppuration. Cold applications must not be made to the diseased surface. The following rules are suggested, with reference to treatment:

1. The hair must be removed.
2. A linen cap should be worn at night, and removed in the morning.
3. The surface should be cleansed twice daily, and upon it should be applied an ointment consisting of thirty parts of vaseline and one of iodoform. For children more than

one year of age, the iodoform may be increased to three or four times this quantity. The general condition should be carefully guarded, and great regularity should be observed in the administration of the food.

Barbier: Concerning Certain Microbic Associations in Diphtheria. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

In diphtheritic membrane one finds, in addition to the Klebs-Löffler bacillus, certain organisms, of which some are constant but without influence upon the form of the disease, while others are inconstant, but pathogenic, and give a particular physiognomy to the disease. Three of these are described as follows: 1. *Streptococcus* (*a*), which is found at certain periods of the year. 2. *Streptococcus* (*b*), which resembles the *streptococcus pyogenes*, and is found in the pharynx when the mucous membrane is red and swollen, covered with thick and diffuent membrane, associated with adenopathy; it is also found in the blood of the heart. This form is very virulent for guinea pigs, whether injected alone or with the bacillus of diphtheria. This association may occur clinically as follows: The bacillus is installed after the streptococcus, this being a primary infectious form, or the two infections may be simultaneous, the form which is infectious from the beginning. The streptococcus may be engrafted upon the diphtheria, this being the secondary infectious form. 3. The *coccus* *γ*, which is found in cases of moderate intensity, in which there is an abundant muco-purulent excretion, or glandular engorgement. With these facts in view, one may distinguish two principal forms of diphtheritic angina. One pure or toxic diphtheritic angina, which is without general microbic infection, and has the following characteristics, there may be no pharyngeal disease nor general disturbance at first, typical membranes appearing in layers, the mucous membrane is almost normal, and there is no adenopathy, croup is frequently present, with tubular bronchial membranes, and no muco-purulent secretion. When death occurs, it results from nasal and bronchial asphyxia, or from syncope and paralysis.

2. Streptococcal diphtheritic angina, which is infectious, and corresponds to the hypertoxic or classical forms, and may be due to the streptococcus rather than to the bacillus. It is present in the membranes, the glands, the pus of the canula, the lungs, and the blood. In this variety the head swollen, and has a leaden hue, a discharge from the nose excoriates the lip, the breath is fetid, pain is severe,

there is swelling, redness, and hæmorrhage of the mucous membrane. The membranes are thin or putriliginous, there is intense adenopathy, and death occurs in one to three days. There is purulent bronchitis, without false membrane, and albuminuria. Should the patient recover, ulcerations of the pharynx and nose persist for a long time.

Moos: Diphtheritic Degeneration of the Nerves. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

There are two groups of changes which depend upon diphtheritic paralysis. In the first the changes affect the vascular system; in the second the nervous. The principal lesions of the vessels are thrombo-arteritis, phlebitis and hæmorrhage. The changes in the nerves are degenerative. Hæmorrhages have been observed in the inter-vertebral ganglia, the cord, the protuberance, the bulb, and even in the cerebrum. Most frequently there is parenchymatous neuritis of the peripheral nerves. In several cases the author has discovered micro-organisms, not only in the perineurium, but also in the nerve bundles. The paralysis may be attributed to specific organisms, or to secondary infections, caused by streptococci. The toxalbumens secreted by microbes may also be influential in the pathogenesis of the paralysis.

Signal: The Heredity of Tuberculosis. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

(Most of the abstracts upon the subject of tuberculosis are from the proceedings of the Congress for Tuberculosis, recently held in Paris.)

The author has been making laboratory experiments upon this subject for the past eight years. The inoculated animals were kept four months after the introduction of various tuberculous materials. The experiments have invariably given negative results with reference to the transmission of tuberculosis from mother to foetus. Guinea pigs, inoculated with fragments of organs or with sputa from tuberculous mothers died from tubercle, while twenty-four guinea pigs, inoculated with fragments from the offspring of tuberculous mothers, and eighteen inoculated with fragments of placenta, did not become tuberculous. In another series of experiments, it was sought to determine whether by direct experiment upon animals one could cause tuberculosis to be transmitted from mother to foetus. Five female guinea pigs received injections of Koch's bacillus into the peritonæum. With

the livers and spleens from eleven of the offspring of these, five injections were made into nineteen guinea pigs. After five months, they were killed, and no trace of tuberculosis was evident. These results are entirely at variance with those which were obtained by Landouzy and Martin, and compelled the author to believe that tuberculosis is rarely inherited. Hutinel asks the question whether the offspring of tuberculous parents bear the germ of tuberculosis, or whether they only constitute a favorable soil for the development of the germ? The results of autopsies made upon children born of tuberculous mothers, added to the experimental evidence, have led him to the conclusion that congenital tuberculosis is rare. In 252 autopsies he found only eight tuberculous infants, their ages ranging from forty-one days to seven months, and in none of these cases was he certain that the tuberculosis was congenital. In autopsies upon children two years old, he found tuberculous lesions in a third of the cases, and in those who had reached the third or fourth year, the proportion was yet larger. He believes that the transmission of tuberculosis from mother to fœtus, by way of the placenta, is possible, but it does not appear to be frequent. Those who are born of tuberculous parents are, however, especially liable to contract the disease, the conditions of their tissues being favorable to this result.

Bernheim believed that all tuberculosis are the result of contagion.

Landouzy had never considered hereditary tuberculosis as either fatal or frequent. He had only spoken of the heredity of a diathetic condition, which causes the children of tuberculous parents to be favorable subjects for the disease, and he was the first to proclaim the dangers of a theory which assumed the fatal character of the tuberculosis of such individuals, provided suitable prophylactic precautions were taken to preserve their lives. He was absolutely in favor of boiled milk as a means of nutrition. He had also called attention to the frequency of tuberculosis in young infants. He could not at that time define the question as to the pathogenesis of tuberculosis in the new-born, but he had been greatly impressed by the fact of the great mortality from that disease in very young children. Comparatively nothing had been done to shield the new-born from tuberculosis, nor had it been generally recognized that children contract tuberculosis with great readiness, especially through the digestive tract, even though not particularly predisposed

to it. Hence the necessity for prophylactic precautions in the care and nutriment of the new-born. It was impossible to deny that congenital tuberculosis might exist. It existed both in man and in animals, and autopsies had revealed tuberculous foetuses *in utero* of their mothers. One case had been observed by A. Jacobi long before the discovery of Koch's bacillus.

III.—SURGERY.

Variot: A Case of Congenital Malformation and a Case of Anomaly of the Ear in Children. (*Gaz. Méd. de Paris*, 1891, viii., 541).

The first was in a girl of six years, who had hereditary syphilis. The right ear was normally formed. The auricle of the left ear was reduced to a stump three centimetres long by one-and-a-half wide. The fibro-cartilage enveloped by the skin was as if shrivelled. The fold of the *helix* was not rounded above but was fused with the fold of the *anti-helix*. In the place of the *tragus* a projection was to be seen, but the projection of the *anti-tragus* was missing. Immediately behind the *tragus*, in the place of the orifice of the external auditory canal, was a rounded lobule, a kind of cutaneous nipple, above and behind which were four narrow orifices, openings of blind canals of two to three millimetres depth. The lobule of the ear was relatively preserved, but its internal aspect looked out, caused by the rotation and folding in of the fibro-cartilage. The orifice of the external auditory canal was completely obstructed, and the palpation of the soft parts gave no information of the existence of a bony canal. The cause of this malformation is not thought to have been syphilis. The most rational hypothesis is that the most projecting part, the periphery of the auricle, had been divided after the manner of congenital amputations, and that the stump in process of repair, in cicatrizing, became united with neighboring parts and had obliterated the auditory canal.

The second case was of a slight symmetrical anomaly of the two auricles of the ears in a boy of three-and-a-half years. This child presented the physical signs of a congenital lesion of the heart. There was hypertrophy, and the hand applied to the chest felt a thrill corresponding to a very intense systolic souffle, the maximum of which radiated in the direction of the pulmonary artery. The sole functional trouble consisted in an habitual dyspnoea, which

appeared as soon as the child made any rapid movement, and in palpitation, which lifted the sternal arch. The anomaly of the ears consisted in a marked projection of the fold of fibro-cartilage which serves as origin of the spiral of the *helix* in the region of the *concha*. Normally this fold disappears as it approaches the *anti-helix*, while in this case it preserved its height until it branched out upon the *anti-helix*. It found a kind of parallel partition which subdivided the *concha* proper. This slight anomaly of the auricles which results evidently from an irregular and exaggerated folding of the fibro-cartilage deserves to be reported when one considers the congenital malformation of the heart. A case is recalled of a child suffering with a congenital narrowing of the pulmonary artery who had a bifid uvula. Authors have reported cases of hare-lip and other monstrosities coincident with malformations of the heart.

Chapin, W. B.: Fracture of the Fibula in a Child Caused by Muscular Contraction. (*N. Y., Med. Jour.*, 1891, liv., 289.)

A woman brought her boy, æt. six years, to my office, for the purpose of having a splinter removed from his leg. She said that she found him sitting on the table playing with his toys, and sharply commanded him to get down. The child, frightened, turned quickly, gave a cry of pain, and complained of his leg hurting him. He was unable to walk, and the mother discovered what she supposed to be a splinter in the outer side of his leg.

What at first appeared to be a large splinter beneath the skin, proved, on closer examination, to be the upper part of a fractured fibula.

The point of fracture was about two inches and-a-half below the head of the bone; the upper fragment had been pulled forward and outward, the sharp end lying just beneath the skin on the outer side of the leg.

The fragment was freely movable, but, after each attempt to bring the fractured ends into apposition, the upper fragment would fly back, and the end assume its former position beneath the skin.

As the boy sat on the table with his knee flexed or semi-flexed, the biceps would have a strong outward action on the fibula, and the fracture must have been caused by the violent contraction of that muscle as the boy suddenly turned himself, the upper fragment being pulled forward and outward by the continued contraction of the muscle. This would seem almost inconceivable, as

the peronæus longus and soleus muscles would antagonize this action; but the mother is intelligent and firmly insists that there was no external violence.

Chocas: *The Treatment of Acute Muscular Torticollis.* (*Rev. Mens. des Mal. de l'Enf.* October 1891.)

This disease has been recognized for many years, but has not received very extensive notice at the hands of systematic writers upon the diseases of children. Acute torticollis generally appears suddenly, perhaps after rapid motion of the affected parts, or it may appear spontaneously. The pain may be intense, even after the slightest exertion, and this is the most prominent symptom. It is located in the cervical region, but may include the entire area of the trapezius muscle. With the pain there is also muscular contraction causing more or less distortion of the head and neck. The top of the trapezius muscle is the initial location of the contraction in the majority of cases. In the spasmodic form of the disease there is clonic contraction of the muscles. In addition to the symptoms mentioned, there may be malaise, loss of appetite, slight fever, and insomnia. The contracture diminishes after a few days, the pains become less severe, and the head resumes its normal position. The disease is especially common in childhood and adolescence, it is rare in adults and the aged. It is more common in boys than in girls. It is related to rheumatism, and is sometimes called *torticollis a frigore*. Syphilis associated with rheumatism is also an occasional cause. Cervical arthritis may result in an osseous torticollis which sometimes resembles acute muscular torticollis. Rheumatic or scarlatinal arthritis may also simulate it. Acute muscular torticollis may also resemble lumbago, the latter being sometimes exclusively of a muscular character and the cause of rheumatism, or muscular rupture. With reference to contractions, two varieties of torticollis may be mentioned: (1) that form which is caused by muscular effort, true traumatic torticollis, in which the contracture is caused by slight twisting of the cervical articulations, perhaps by the rupture of muscular fibres. (2) the spontaneous form which results from mild arthritis in the cervical region, or from idiopathic muscular rheumatism involving the muscles of the neck. The acute form of torticollis resembles the chronic one, but in the former the symptoms improve and disappear, in the latter they persist and become aggravated. The acute form is usually recovered from, even though it may be untreated, but it may pass into the

chronic form if neglected. Rest, warm applications, and anodynes subcutaneously will relieve the pain in most cases, but an exclusively medical treatment is not very efficacious nor practical. Other useful means of treatment are massage, suspension in Sayre's extension apparatus, and electricity.

Wessinger, J. A.: A Case of Foreign Body in the Air Passages. (*N. Y. Med. Jour.*, 1891, liv., 292.)

Elmer C. R., now æt. fourteen, while tacking up a lambréquin, drew one of several large brass-headed tacks which he was holding in the mouth into the trachea and into the left bronchus, as near as could be determined by external location, about one inch below the bifurcation. The patient was first seen by Dr. Dubois, who found him suffering from spasm of the glottis, dyspnœa, cyanosis, incessant coughing, and a frothy, slightly blood-tinged expectoration. After a few days the irritation passed away and the patient returned to normal health, and the accident was soon forgotten. One year later, and about six months ago, the patient first came to my personal notice. At this time the boy appeared robust and healthy, with, however, the presence of a slight irritative cough. Inspection showed the chest symmetrically developed. Auscultation gave a diminished vesicular murmur over the region of middle lobe of left lung. Bronchial respiration somewhat marked. Percussion gave dulness and pain over an area two inches in diameter and an inch and-a-half to the left of the median line of the sternum and over the vicinity of the bifurcation of the left bronchus. I gave it as my opinion that the foreign body, whatever it might be, was located in the region outlined above, and the best treatment would be to be conservative and await developments. Aside from the constant dry cough, the patient felt no inconvenience until the morning of August 3d, last, when I was called to see the patient, suffering from violent attacks of coughing, accompanied by quite profuse purulent expectoration. During one of these fits of coughing he expectorated the tack that had passed into the bronchus eighteen months before. At this writing the irritation and cough have subsided, and, while the respiratory murmur is not quite clear, yet the patient is on the road to recovery. The tack was inclosed in a dark, hard, grumous substance, and had probably become encysted, and, in turn, by a suppurative process, had been liberated and expelled by the act of coughing.

Summers, J. E., Jr.: Removal of the Vermiform Appendix from a Child Twenty-two Months Old, for Suppurative Appendicitis; Recovery. (*Med. News*, Phila., 1891, lix., 513.)

Four days previous to the operation, the child was seized with what was judged to be an attack of colic. The pulse was very rapid and the temperature 104° F. There was marked abdominal distress, frequent vomiting, and the bowels were constipated. The child was just recovering from an attack of summer diarrhœa. In the next two days, although the temperature had gone down, ranging from 100° to 101° F., the pulse was still proportionately too fast. The abdominal symptoms continued more or less pronounced, requiring opium. A small tumor situated in the right abdominal region had been recognized.

On the day of the operation, the pulse was 140, the temperature 101° F., the abdomen somewhat distended and painful, more especially over the region of a small tumor situated with its greater part above McBurney's line. There was no special point of tenderness. The operation was done in the usual manner. The incision was made in the right linea semi-lunaris. The tumor, agglutinated intestines, and omentum were isolated from the general peritoneal cavity by the careful packing of iodoform gauze between the parietal peritonæum and the intestines about the tumor. The omentum was then separated from the surface of the tumor and the intestines gently teased apart until the escape of the characteristic stinking pus indicated the opening of an abscess. After several drams of pus had escaped, the separation of the intestines was continued until the appendix was recognized, when it was freed from its adhesions, brought up into the incision and tied off from its mesentery and close to the cæcum by a double silk ligature, and then cut away. It was much enlarged, in part gangrenous, and contained three perforations. No foreign body could be discovered. The usual dressings were applied. The convalescence dated from the day of operation, and was uneventful.

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SCARLATINAL NEPHRITIS.*

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New York.

NEPHRITIS is a very important and common complication and sequel of scarlet fever. It usually begins in the declining period, or during convalescence, in mild as well as in severe cases. It is sometimes slight, producing but little aggravation of symptoms, but, in other instances it changes the prognosis, causing death in cases which seemed to be favorable prior to its occurrence. The presence of albumen in the urine, which not in all instances, but ordinarily indicates the occurrence of nephritis, is more common in some epidemics of scarlatina than in others. In the *British Medical Journal*, 1885, Mr. Thomson states that albumen occurred in sixty per cent. of 180 cases. Microscopic examination also revealed the presence of casts and blood cells in most of these cases. Heidulhane found albuminuria in eighty per cent. of the scarlatinous cases examined by him. On the other hand, Charles West, of London, discovered albuminuria in only four per cent. of his patients in one epidemic. It commenced most frequently at the end of the first, or in the second week. Atkinson, in a paper published in the

* Read before the American Pediatric Society, Washington, D. C., September 23, 1891.

International Journal of Medical Science, July, 1886, says in some epidemics albuminuria is present in seventy per cent. of the cases, and in other epidemics, in not more than five per cent. He makes the remarkable statement that Jaccoud has not seen a case of scarlatinal nephritis in fifteen years, and that he (Jaccoud) attributes the absence of this complication largely to the use of a milk diet. In New York City, so far as my observations extend, in every scarlatinous epidemic a daily examination of the urine in each case at the close of the first week and subsequently, reveals the presence of albuminuria in more or fewer cases, the proportion of those having albuminuria varying in different epidemics. The London *Lancet*, Nov. 26, 1887, states that the statistics of 3,000 cases of scarlet fever admitted into the London institutions, showed a death-rate of seven per cent. Albuminuria in an appreciable quantity, and for a considerable time, occurred in fifteen to twenty per cent. of these cases. Eighty-three scarlet fever patients died in two of the hospitals, and some form of kidney disease was responsible for this result in twelve per cent. of the deaths.

Anatomical Characters.—Dr. William H. Welch, the distinguished professor of pathology in Johns Hopkins University, wrote as follows in a note bearing the date September 16, 1891: "In regard to the renal complications of scarlatina, we have probably to distinguish the moderate transitory albuminuria accompanying the early stages, and the height of the disease from the genuine scarlatinal, or post-scarlatinal nephritis. The former is probably associated only with such parenchymatous changes as accompany many acute infectious fevers, and is not a genuine nephritis. The latter is, in most cases, a glomerulo-nephritis, with a varying amount of interstitial change in the form of small-celled infiltration. Whether the genuine scarlatinal glomerulo-nephritis is caused by the specific virus of scarlatina, or by some complicating secondary organism is not settled."

Prof. Francis Delafield, of New York, of the College of Physicians and Surgeons, has made many microscopic ex-

aminations of inflamed kidneys, and he writes as follows of acute exudative nephritis: "This is frequently a primary nephritis, either occurring after exposure to cold, or without discoverable cause. It complicates scarlatina, measles, diphtheria, typhoid fever, acute general tuberculosis, pneumonia, acute endocarditis, acute peritonitis, dysentery, erysipelas, diabetes, and many other of the infectious diseases and severe inflammations." He states that it has the characters of an exudative inflammation. The liquor sanguinis and the red- and white-blood cells escape from the renal vessels into the tubules. "Swelling or necrosis of the renal epithelium, and changes in the glomeruli" may also occur. In severe cases resulting fatally, "we find the kidneys large and smooth, the cortex thick and white, or white, mottled with red, or the entire kidney intensely congested. If the stroma is infiltrated with serum the kidney is succulent and wet; if the number of pus cells is very great there will be little whitish foci in the cortex." The tubal epithelium is sometimes swollen and opaque. Hyaline cylinders, identical with the casts, are found in the convoluted tubes, and more abundantly in the straight tubes, along with irregular masses formed from the exuded blood plasma. In the tubes are also red and white-blood cells. The glomeruli exhibit important changes. They become larger and more opaque, "due to the swelling and growth of the cells on and in the capillaries," for the glomerular capillaries in their normal state are covered on their outside by nucleated cells, and flat cells line their inner surfaces in places, not continuously. On account of these cellular changes, the individual capillaries in the glomerulus become indistinct, but "the main divisions of the tufts are visible. . . . In very severe cases the growth of the cells on the tufts is so considerable that they form large masses of cells between the glomerulus and its capsule. The walls of the arteries in the kidneys may be thickened by a swelling of their muscular coats." Acute exudative nephritis may be fatal, even rapidly, but in general, those who recover, recover completely. The structural changes enumerated above

are more marked in the cortex than in other parts of the kidney.

Acute Diffuse Nephritis.—Dr. Delafield says in regard to this disease: “It is one of the forms of scarlatinous nephritis. . . . The kidneys are large, at first smooth; later sometimes a little roughened; the cortical portion is thick, white, or mottled with yellow or red, or congested; the pyramids are red. In these kidneys we find the same lesions as have been described as belonging to exudative nephritis, but with two additional changes, changes which are found in the earliest stages of the inflammation, and which give the characteristic stamp to the lesion. First, a growth of connective tissue in the stroma; second, a growth of the capsule cells of the glomeruli. These changes do not involve the whole of the kidney, but symmetrical strips or wedges in the cortex, which follow the line of the arteries. These wedges are small or large, few or numerous, regular or irregular, in the different kidneys, but in every wedge we find the same general characters; one or more arteries, of which the walls are thickened; glomeruli belonging to these arteries, with a large growth of capsule; cells compressing the tufts, “a growth of new connective tissue in the stroma, around and parallel to the arteries. Between the wedges we find at first only the changes of exudative nephritis, later a diffuse growth of connective tissue. If the nephritis is of acute type, and longer duration, the tissue is denser, and has more basement substance. Where the growth of the new tissue is abundant, the tubes become small and atrophied. The exudation from the blood vessels is very considerable, so that the urine contains large quantities of albumen, many casts and red and white-blood cells.” (Handbook of Path., Anat. and Histol., Delafield and Prudden, Wood & Co., 1889.)

The nephritis complicating and following scarlet fever is frequently more dangerous than the primary disease. A clear appreciation of its therapeutic requirements is important, since by judicious treatment many recover, who would inevitably perish by improper measures. The

family should be informed that the danger from scarlet fever does not cease with the decline of the eruption, and that the kidneys may become seriously affected when the patient is in other respects convalescent.

In considering scarlatinous nephritis, the fact already alluded to should be borne in mind, that as Prof. Welch has stated, albumen in the urine, which, easily ascertained, is regarded by many practitioners as a certain diagnostic sign of nephritis, if it occur during, or immediately after scarlet fever, sometimes, if transient, occurs from slight anatomical changes in the kidneys, not nephritis. The late Prof. Austin Flint, a very accurate clinical observer, wrote as follows: "Transient, slight albuminuria occurs in scarlet fever as in various other, without denoting renal disease (*Practice of Medicine*, page 1055). This transient and slight albuminuria, without nephritis, occurs during the height of scarlet fever, when the temperature is elevated, and the patient is seriously sick in other respects, than as regards the urinary apparatus. Owen Fowler, in his remarks on 2,000 cases of scarlet fever occurring in four years in the London Fever Hospital, states that albuminuria was sometimes due to the high temperature (*British Medical Journal*, Nov. 14, 1885). The nephritis which results from glomerulo-nephritis, and indicates its presence, occurs for the most part when scarlatina is abating or has abated, and it continues as a sequel. Unlike the transient albuminuria alluded to by Profs. Welch and Flint, it is attended by the presence of more or fewer blood cells and casts in the urine.

The cause of scarlatinal nephritis is an interesting subject for investigation. Prof. Flint wrote, "It is an important question, whether this sequel proceeds exclusively or chiefly from an agency pertaining intrinsically to scarlatina, or whether it depends on extrinsic causes, such as the action of cold." Mr. Thomson, in a paper published in the *British Medical Journal*, Nov. 14, 1885, quotes the opinion of Mr. Dickinson, that only a small proportion of the cases of scarlatinal nephritis are due to taking cold.

The theory which is accepted, relating to the ætiology of a disease, influences its treatment, and the theory that scarlatinal nephritis is not caused, or is rarely caused by "taking cold," and that it is commonly caused by microbic agency, is likely to lead to the abandonment of the precautionary measures against "taking cold," long recommended and employed by the profession. The opinions of the distinguished physicians whose names we have mentioned, favorable to the microbic theory, must have their influence. Moreover, we have stated in a paper already published, that bacteriologists have discovered microbes, the streptococci predominating at the seat of inflammation in the otitis, arthritis, pleuritis, pneumonia, pericarditis and endocarditis, complicating scarlet fever. Besides, in thirteen of fourteen cases of albuminuria and œdema occurring in scarlatinal nephritis, it is reported that Babes found the streptococcus either alone or associated with the pneumococcus of Talamon-Fränkell in the kidneys.

On the other hand, it is well known that nearly all writers on nephritis occurring independently of scarlet fever, regard taking cold as the most important factor producing it, and from the observation extending through many years of cases of scarlatinal nephritis, I am impressed with the belief, as I have stated elsewhere, that those who are in bed, or in a warm room until the acute symptoms have abated, and are carefully housed or warmly clothed during the period of desquamation, are more likely to escape the nephritis than are those who are early and carelessly exposed to currents of air or outdoor weather. According to my observations, the mildest cases of scarlet fever, in which the system is so slightly affected, that the presumption is strong that the kidneys cannot be injured by the direct action of the poison, or by microbic agency, are, nevertheless, liable to contract nephritis if too early exposed without sufficient covering, to cold air or outdoor weather. Thus I recall a case of severe scarlatinal nephritis, which occurred in the favorable season of mid-summer, and was nearly fatal from

eclampsia. The parents at first said that the child had not been sick, but they finally recollected that it had had a rash two weeks previously, which they supposed was due to the summer heat, and during the continuance of which it played every day in the open air. Microbic agency in producing the nephritis in this case must have been very slight. The supposition is much more reasonable that it was caused by exposure of the child to outdoor weather during the continuance of the scarlet fever. The frequency of nephritis after mild attacks of scarlet fever is, I think, attributable to the fact that such cases are not confined to bed, or even the sick-room, and are exposed to currents of air and vicissitudes of temperature, by which transpiration from the surfaces is checked. It is evident, in the present state of our knowledge, that in order to prescribe a correct prophylactic and curative treatment in regard to scarlatinous nephritis, both theories must be accepted, that this complication and sequel is sometimes produced by microbic agency, and in other instances by taking cold.

Treatment.—The following is, in my opinion, the proper mode of treating scarlatinous nephritis. The efficacy of the following remedial measures has, I think, been abundantly demonstrated by cases occurring in family practice and in the institutions of New York. The patient should be kept in bed during the scarlet fever, however mild it may be, and in a room warm, but not uncomfortable, during the three or four weeks of desquamation. The physician should never discharge a scarlatinous patient, although his health is apparently entirely restored, without one or more examinations of his urine at his last visits. When his visits cease the nurse should be instructed to make the examinations by heat and nitric acid twice weekly during the ensuing month, and if any evidence, however slight, appear that the kidneys are involved, the physician should be notified, in order that appropriate treatment may be immediately commenced. Early and correct treatment of the nephritis is attended by much better results than delayed treatment, and many more patients are doubtless

now saved than in former times, when little attention was given to the state of the kidneys until dropsy or other prominent symptoms appeared. I have found no mother or nurse so ignorant that she could not properly employ the tests of nitric acid and heat, and if she be solicitous for the welfare of the child she will not hesitate to carry out the directions, and notify the physician if the tests employed produce the least cloudiness or turbidity of the urine.

The patient, as soon as nephritis begins, should be put to bed in a room of warm and equable temperature (72° F. to 75° F.). His diet should be liquid, consisting of milk, farinaceous food, and a moderate quantity of animal broth. He may drink liquids freely, warm or tepid, not cool, as Vichy, carbonic acid water, or plain water, to which spiritus ætheris nitrosi is added. If there be marked prostration from the primary disease, alcoholic stimulants should be allowed.

The indications of treatment are to relieve the hyperæmic kidneys by diaphoresis and purgation, and when this is effected to increase the quantity of urine, which is usually diminished, and thus eliminate the poisonous product, urea, which is the chief noxious principle generated in the system in this disease. To produce diaphoresis, the patient should be immersed in a warm bath at about the temperature of the body (98° to 100° F.), in which, if he be quiet and comfortable, he should remain from fifteen to twenty minutes, but a shorter time if restless and frightened by the water. After the bath he should be placed in a warm bed and well covered by blankets. If perspiration result, the bath has been useful, and it may be employed in grave cases two or three times daily. If perspiration do not result, it may be produced by surrounding the body by hot-dry or hot-moist air. Hot air may be produced by burning alcohol in a thin layer upon a plate under a chair, upon which the patient sits surrounded by a blanket, or he may be covered in bed and the hot air introduced under the bed clothes. In New York City a convenient apparatus is used for this

purpose, consisting of a small sheet-iron pipe enclosed in a small box of the same material. The box is in the form of a trunk, with a handle for convenience in carrying, and the lower end of the pipe, which extends nearly to the floor, contains an alcohol lamp. Hot moist air may be produced by placing bottles of hot water surrounded by towels wrung out of warm water, against the body and limbs of the patient, who is covered in bed. The steam arising from them, and enveloping the body and limbs, produces a prompt sudorific effect. A convenient apparatus for generating steam in the treatment of these and other cases requiring diaphoresis, consists of a cylinder pierced with holes for the admission of air, and containing a spirit lamp, over which is a pan or pail holding a little water. The patient, nearly denuded, is placed in a chair with the apparatus beneath, and is covered by a blanket, so that the steam surrounds the body. This gives rise to free perspiration, which continues after the patient is placed in bed. By modes of treatment like the above, which can be modified according to the exigencies or conveniences of the case, and be repeated two or more times daily, sufficient perspiration can usually be produced.

The sudorific effect of the treatment by external warmth described above, should be aided by the use of diaphoretics. Those which have usually been prescribed are the liquor ammonii acetatis, the acetate of potassium, the bitartrate of potassium, the citrate of potassium, and the spiritus ætheris nitrosi. If employed when the surface is cool, these medicines act rather as diuretics than diaphoretics. Being simple in their action and without deleterious effects, they may be given frequently and in large proportionate doses for the age. The following will be found a useful remedy, having diaphoretic, diuretic, and laxative properties :

R. Potassii acetatis,
Potassii bicarbonatis,
Potassii citratis, aa. ℥ii ;
Infus. tritici repentis, ℥viii ;
M.

DOSE.—Give one teaspoonful every three or four hours to a child of five years.

But during the last few years a diaphoretic has been discovered and employed, which surpasses those previously prescribed in efficiency, and which in cases of unusual gravity, when other remedies have failed, is sometimes instrumental in saving life. I refer to pilocarpine, the active principle of jaborandi. Being soluble in water and tasteless, it is easily administered and retained, when on account of the uræmic poisoning present, the stomach is irritable and medicines that are unpleasant to the taste, are liable to be vomited. The alcoholic stimulant may be increased at the time of its use, in order to prevent any depressing effect. To a child of two years, $\frac{1}{40}$ to $\frac{1}{20}$ of a grain may be administered by the mouth every four to six hours. It may be employed hypodermically as $\frac{1}{20}$ of a grain to a child of five years. It has both a diuretic and a diaphoretic action, and it stimulates both the salivary and mucous secretions. According to one observer, an adult when fully under the influence of pilocarpine secretes from one to two pints of saliva in two hours, and Leyden reports a case of diphtheritic nephritis in which the quantity of urine rose from half a pint to five pints daily. But its most prompt and certain action is on the sweat glands. Hirschfelder speaks of its beneficial action in relieving various forms of dropsy, and adds: "In one morbid condition of the kidney, however, jaborandi is the remedy *par excellence*, and that is the acute parenchymatous nephritis which frequently follows scarlet fever. . . . This disease heals spontaneously if the danger which threatens life from the reduction of urine, and from the effusion of fluid into the cavities of the body be averted. In this disease jaborandi works wonders." The following cases in which the beneficial action of this agent was apparent, occurred in my practice :

CASE I.—G., male; æt. five years and six months; sickened with scarlet fever, June 2, 1882. The case progressed favorably, and during the convalescence my attendance ceased. On June 24th, my attention was again called to the child, when the urine was found to be scanty and very albuminous. The common treatment was em-

ployed, to wit, warm baths, derivatives over the kidneys, laxative doses of jalap and the potassium bitartrate. The urine, however, remained scanty—f. ℥ij in twenty-four hours—and on June 28th, severe convulsions occurred, which were controlled by doses of bromide of potassium and five grain clysters of hydrate of chloral. The muriate of pilocarpine was now given in doses of $\frac{1}{32}$ of a grain every three hours in cold water. This was not vomited, and it must have been given in larger doses than that directed, for on July 1st the bottle containing one grain was empty. The mother stated that the child had taken only two doses, or $\frac{1}{16}$ of a grain of the pilocarpine, when both the diuretic and diaphoretic effects were apparent. She also stated that the quantity of urine was larger when the pilocarpine was administered every third hour than when given at a longer interval. A flaxseed poultice dusted with mustard was also applied over the kidneys. Occasional convulsive attacks continued to occur, which were readily controlled by enemata of hydrate of chloral. On June 30th, the symptoms were all better; no more attacks of eclampsia had occurred and the urine was more abundant and less albuminous. The mother remarked that the new medicine had settled the stomach and increased the urine. The record for July 4th, states: "Continues to improve; takes the muriate of pilocarpine, gr. $\frac{1}{32}$ every six hours, and has not vomited since he began to take it; pulse, 106; temperature, 99°; is playful; passes urine freely, and takes nearly three quarts of milk daily, with some farinaceous food. July 6th, is fully convalescent; pulse, 92; temperature, 99°; perspires much; urination normal in quantity and character."

CASE II.—Mary S.; æt. five years; was exposed to her brother who had scarlet fever, and about the same time she had sore throat without any efflorescence. Nearly two weeks subsequently (Dec. 22, 1882), she had the symptoms of severe nephritis; her urine was reduced to f. ℥iv . in twenty-four hours, and was highly albuminous. A powder of calomel, gr. ijj ., and of resina podophylli, gr. $\frac{1}{8}$, was prescribed, and it produced one stool. One-twentieth of a grain of muriate of pilocarpine administered was vomited, but another dose was taken at 10 P.M., and the mother says that the patient "sweat fearfully" in the night. Three or four doses were administered daily during the following week, and when not vomited they usually produced perspiration, lasting from one to one-and-

a-half hours. The record for December 30th, is as follows: "Takes gr. $\frac{1}{20}$ pilocarpine twice daily, and occasional doses of infusion of digitalis; urine more abundant, its specific gravity 1014, slightly albuminous and containing very few granular casts and blood corpuscles; has lost its smoky appearance; reaction alkaline; perspiration slight; patient convalescent."

Other similar cases might be related, sufficient, I think, to show that pilocarpine given as in above cases in moderate doses, and with sufficient interval, does not produce any deleterious effect and is a very useful remedy in scarlatinous nephritis. It is a remedy, however, that should be given cautiously, at sufficiently long intervals, and discontinued when the urgent symptoms are relieved. I have seen, in one instance, fatal bronchorrhœa rapidly develop in a child that had taken this remedy in too large or too frequent doses.

In the treatment of scarlatinous nephritis, laxatives or purgatives of a hydragogue nature are required, especially when dropsy occurs or symptoms indicating uræmic poisoning are present. Their action is more certain than that of most diaphoretics and diuretics, and their employment is imperatively required in severe or dangerous cases, in which it is necessary to remove as soon as possible the serum or urea, which endangers life.

Young children, or those with delicate stomachs, and those much enfeebled by the primary disease, may take magnesia, either the citrate or the calcined. A good cathartic for ordinary cases is a mixture of jalap and potassium bitartrate, the *pulvis jalapæ compositus*, consisting of one part of jalap and two of cream of tartar. Ten grains of the mixture may be given to a child of five years, and repeated in two to four hours, according to circumstances. Its effect is increased by dissolving a teaspoonful of potassium bitartrate in a gobletful or half a gobletful of water, and allowing the patient to drink from it. The following cathartic also acts promptly and beneficially in the treatment of scarlatinal nephritis:

R. Ol. cinnamonii, gtt. viij ;
Magnes. sulphat., $\mathfrak{z}\text{i}$;
Potass. bitartrat., $\mathfrak{z}\text{ii}$.
M.

DOSE.—One teaspoonful repeated from two to four hours, until catharsis occurs.

After the use of laxative agents, the kidneys, being less congested on account of the diversion that has occurred, often begin to excrete urine more freely. But if the patient be anæmic or enfeebled, and the symptoms due to the nephritis be not urgent, it is frequently better to avoid active catharsis, which reduces the strength more or less, and employ remedies of a sustaining character, as in the following case attended by myself :

A boy, pallid and scrofulous, began to have anasarca after scarlet fever, chiefly in the scrotum, with a moderate degree of ascites. The urine, which was passed in nearly the normal quantity, contained albumen, but not in large amount. The patient gradually and fully recovered with no treatment except the use of iron internally and the application of the oil-silk jacket over the kidneys and abdomen to produce diaphoresis. Such a patient, treated by the powerful eliminatives which we employ for the more urgent and robust cases, would probably have been injured rather than benefited. No treatment can, therefore, be recommended for scarlatinal nephritis which will be strictly applicable to all cases. Variations are demanded according to the state of the patient and the form and gravity of the disease.

Diuretics which do not stimulate the kidneys are proper at an early as well as late period of the renal malady. Digitalis has been largely employed in scarlatinal nephritis. I do not hesitate to prescribe it from the first day in ordinary cases.

One teaspoonful of the infusion of digitalis in combination with the acetate of potassium, may be given every third hour to a child of five years. The following formula is for one of this age in good general condition :

R. Potassii acetatis, $\mathfrak{z}\text{ss}$;
Infus. digitalis, f. $\mathfrak{z}\text{vj}$.
M.

Dose : one teaspoonful in water.

Local treatment should be prescribed, since it furnishes important aid in subduing the nephritis. Thomas, Romberg, and others, have recommended the application of leeches over the kidneys. Thomas says: "In many cases the abstraction of blood causes immediate and permanent relief; the fever and the pain in the region of the kidneys cease, the secretion of urine becomes augmented, the albuminuria lessens from day to day, and the moderate degree of dropsy that has been developed, disappears." Abstraction of blood by leeches or otherwise, I have never employed, and it is likely, in my opinion, to do harm rather than good, unless, perchance, it may be of service in exceptional instances in robust children, who have not been perceptibly reduced by the primary disease. In the majority of cases, instead of depletion, a poultice slightly irritating between two pieces of muslin should, I think, be constantly worn over the kidneys as long as the albuminuria or nephritic symptoms are pronounced. A poultice of equal parts of pulverized flaxseed and ginger, or of one part of pulverized mustard and sixteen of flaxseed, mixed with sufficient water to moisten thoroughly the cloth which retains it, is useful for this purpose. Older children not likely to be frightened by the process, may be treated by the daily application of dry cups over the kidneys, while the body is warmly covered. In subacute cases, not attended by any alarming symptoms, sufficient redness may be produced over the kidneys by one of the mildly irritating plasters constantly worn, which the shops contain.

AN ideal article of food must serve two purposes and consist of two classes of constituents. It must, in the infant, supply the growing tissue with material sufficient to take the place of that which is constantly wasted, and to allow a surplus for growth; and, secondly, supply fuel for the purpose of keeping up an equable temperature and the functions of the organs, mainly those of respiration.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

CHRONIC NEPHRITIS IN CHILDREN AND
YOUNG ADULTS.*

BY HENRY JACKSON, M.D.,

Physician to Out-Patients of Boston City Hospital.

I DESIRE to call the attention of the Society to the subject of chronic Bright's disease, chronic nephritis, as it occurs in children and young adults. It has been my fortune to observe several such cases, and I feel that the disease may be of more common occurrence than reference to the principal text-book on diseases of children would lead one to suppose. In many of the text-books no mention is made of chronic nephritis. Thomas in Gerhardt's *Handbuch* speaks of chronic parenchymatous nephritis as occurring occasionally, of interstitial nephritis as very rare; he ends his article on chronic nephritis with saying: "With these few words I leave a subject which hardly belongs in a lecture on the diseases of children."

Biedert in his edition of Vogel's book on diseases of children says, that Vogel never saw but one case of chronic nephritis in a child, though he added in a note of his own insertion, that the disease may occur in children. Baginsky remarks that very little has been written on chronic nephritis in children, and thinks this disease is far more common than is usually considered; he mentions the occasional occurrence of intestinal nephritis. With the exception of Goodhart's most exhaustive article on chronic nephritis in the recent *Cyclopædia of the Diseases of Children*, Baginsky's article is the only one I have found which would lead the practitioner to consider chronic Bright's disease in children otherwise than as a rarity which might occasionally occur. In fact, in most text-books we find under the heading "Kidney" only acute nephritis as found in scarlet fever, diphtheria and other acute infectious diseases. Dr. L. Emmett Holt, has added an

*Read by Dr. Putnam, before the American Pediatric Society, Washington, D. C., September 23, 1891.

important chapter to our knowledge of the disease of the kidney in children, by drawing attention to the not infrequent occurrence of primary renal disease in infants, where no historical evidence is forthcoming to suggest the existence of any preceding infection of scarlet fever, or other acute infectious disease. [ARCHIVES OF PEDIATRICS, v. 4, p. 1.]

Henoch says that when chronic nephritis occurs in children the symptoms vary in nowise from those of a similar disease in adults. When we consider that Bright's disease is often one of the most insidious of the diseases of adult life, it seems desirable that more attention should be given to the possibility of the disease occurring in children. Furthermore a careful study of a considerable number of cases in children, may lead to some points of value as to the history or diagnosis of chronic Bright's disease as it appears in children.

Goodhart in his article on Bright's disease in the Cyclopædia of the Disease of Children, divides the disease into two groups: Acute, in which he also places subacute form, and the variety usually described clinically as chronic parenchymatous nephritis. Chronic, applied only to chronic interstitial nephritis. I intend to describe under the title chronic nephritis the forms usually clinically described as chronic parenchymatous and chronic interstitial nephritis. Pathologically these forms are nearly allied, and run one into the other by imperceptible gradation. Throwing out of consideration the question whether the granular kidney may at times be but a later stage of the large white kidney, we certainly have well-marked clinical phenomena, especially prominent as the one or the other of the essential pathological factors predominate. Pathologically a simple parenchymatous disease is found only in connection with systemic poisoning, as by arsenic or some other acute infectious disease. The so-called large white kidney of chronic parenchymatous nephritis always presents more or less evidence of interstitial inflammatory growth. Furthermore, it is very difficult to make an exact diagnosis as to the pathological condition of

the kidneys by a study of the clinical history and examination of the renal epithelium as found in the sediment of the urine. Two cases occurred in private practice; in fact I have for several years made many very careful examinations of the same, both as to the amount of urea and urine passed, and as to the microscopic character of the sediment. (I must apologize for introducing these cases here as I have published notes on both cases in another connection.—*Boston Medical and Surgical Journal*, v. cxxiv. p. 477.)

CASE I.—Boy, fourteen years of age. As a child he had pertussis, variola, measles, and at three years of age a severe attack of tonsillitis. When he was twelve years of age he had in October, 1888, an acute feverish attack, ushered in by chill; for several days he had high fever, and subsequently moderate fever for four weeks; at this time the chief symptoms were diarrhœa and weakness; he had no vomiting and no œdema. He never had scarlet fever and there was no reason to suppose that the acute attack was subsequent to a mild and unobserved scarlet fever. At this time the urine was scanty, contained a large amount of blood, and the sediment was characteristic of acute nephritis. No exposure to wet or cold was noted. Apparently his disease was an acute idiopathic nephritis. In November 1888, examination of the urine gave the following result: Color, yellow, specific gravity, 10.22; a large trace of albumen; urea increased in amount; amount of urine about normal. The sediment contained numerous hyaline and finely granular casts; a good many blood casts; a little free blood. At this time he was rather pale, did not feel strong, but had a good appetite; otherwise no symptoms noted. A month later the blood casts had disappeared from the urine, though the sediment still contained a good many free red blood globules; there were hyaline and granular casts in abundance. There had been a marked improvement in his general health.

In January, 1889, many of the casts contained a few fat drops; the amount of albumen was small. In May, 1889, his mother said he seemed well in all respects; there was no œdema. Examination of the urine gave the following result: Color pale; specific gravity 1015; albumen, a large trace. Sediment contained numerous red blood globules, hyaline and finely granular casts in abundance; on many of the casts a few fat drops. The amount of the urine was

increased, and it contained 20 grammes of urea to the liter. During the last year the amount of albumen has increased to about 1-4 per cent.; the urine has never been less than twenty grammes to the liter; the sediment has shown constantly numerous hyaline and finely granular casts, with fat drops in many of the casts; usually a few and occasionally many free red globules have been found in the urine.

The boy's general health has been perfectly good. No œdema, no symptoms of disturbed nutrition or digestion. No symptoms, except the physical examination of the urine have pointed to the existence of any renal disease. He is small in stature, but for a boy of his age is a good athlete; there is no enlargement of the heart. The fat casts point to chronic degeneration of the parenchyma of the kidney, but the small amount of albumen, the rather large amount of water, and the entire absence of œdema suggest that there is more disease of the interstitial tissue than of the parenchyma of the kidney. There is a constant recurrence of the presence of red blood globules in the sediment, and occasionally a few blood casts appear. On July 31, 1891, nearly three years since the primary attack, I made the following entries of the condition of the urine: Pale color; specific gravity 1076; albumen, one-fourth per cent. In the sediment, very numerous hyaline and finely granular casts; several fatty casts; a few blood casts; a few fatty degenerated renal epithelial cells; an occasional red blood globule. Urea 25 grammes to the liter. Amount of urine increased.

The long continuance of fat casts and fatty degenerated epithelium demonstrate the existence of a chronic parenchymatous nephritis; the absence of œdema, the small amount of the albumen and the rather large amount of urine passed, suggest that the chief lesion exists as a chronic interstitial nephritis.

CASE II.—A young man of nineteen years. He always considered himself well until the spring of 1889 when he was seventeen years of age. At that time, and during the summer he found that he was easily tired, did not feel able to do his usual work, and in general, was "run down." An examination of the urine in September, 1889, showed one-fourth per cent. of albumen; the amount was large, specific gravity 1016, and the sediment contained a good many hyaline and granular casts with a few red blood globules. He had no headache, no vomiting, no œdema; his color was good. No enlargement or other change was found in the condition of the heart.

In November 1889 the examination of the urine was practically the same, except that some of the casts contained fat and a few fatty degenerated epithelial cells were found.

During January and February, 1890, he was in the South at Aiken, and a specimen of urine passed on February 11, showed a small trace of albumen; no casts were found in the urine. On his return in the spring of 1890 the urine again contained albumen and a good many casts. In July, 1890, arsenic was found in his urine, and examination of the wall paper of his bedroom showed that it contained a good deal of arsenic.

During the last year his urine has been examined many times; it has always shown the presence of a small amount of albumen, and usually a few hyaline and granular casts. The last examination in June, 1891, gave a very small trace of albumen; no casts. As his general condition has improved in the last year, and the examination of the urine suggests a gradual improvement in the condition of the kidneys it is, I think, fair to presume that the albumen and casts may have been due to a fatty degeneration of the parenchyma, dependent upon chronic arsenic poisoning. Etiologically the case is of importance, as it would suggest the possibility of arsenic as the cause of some cases of chronic nephritis. I have introduced the case as the first symptoms appeared, when the lad was seventeen years of age, and the examination of the urine pointed to a condition of the kidney which had then already existed for some months, if not years.

CASE III.—A boy, seventeen years of age, entered the Boston City Hospital, May 27, 1884. The previous health had been good; no history of scarlet fever or diphtheria; no marked exposure to cold. Nine days before entrance to the hospital he had pain in the stomach with some vomiting; slight headache and "feverishness"; these symptoms were soon followed by general swelling. On entrance he had considerable œdema of the legs and scrotum; slight puffiness of the face; some cough and dyspnoea on exertion.

The urine was pale, acid, of specific gravity of 1020; one-fourth per cent. of albumen. In the sediment, numerous coarse and fine granular casts were found, also free fat and a few fatty casts.

During a stay of two months in the hospital, his general condition improved markedly, and the œdema almost disappeared. There was no marked change in the character

of the urine. Here again, the examination of the urine and the subsequent course of the case indicate that the disturbance on account of which he entered the hospital, was but an acute intercurrent exacerbation in a chronic nephritis.

CASE IV.—A boy sixteen years, of age, a plumber, entered the Boston City Hospital, April 2, 1885. He was well until he was fourteen years of age. During the two years previous to entering the hospital, he had numerous attacks of severe and persistent vomiting, accompanied by frontal and occipital headache; he has had two convulsions; no swelling noticed.

On his entrance to the hospital he had obstinate and frequent vomiting, severe headache; no oedema. The area of cardiac dulness was not increased; a short soft murmur was heard just beneath the nipple.

An examination of the urine showed it to be pale in color, large trace of albumen, and in the sediment an occasional hyaline and fine granular cast was found; the specific gravity was 1011

A month later he had less vomiting, was able to sit up; the urine showed the same characteristics; the amount of urea passed was eleven grammes to the liter. Ophthalmoscopic examination showed a slight haziness of the optic discs.

He left the hospital in May and was able to work for a few weeks, but reentered the hospital on the 27th of June. At that time he had again much vomiting and frontal headache; on the following day two uræmic convulsions.

In July slight oedema of the legs developed; an examination of the heart showed that the area of cardiac dulness was increased.

Throughout the summer he had excessive vomiting, with severe headache; constant examination of the urine showed that it was of low specific gravity, contained a small amount of albumen, and in the sediment there were a few hyaline and granular casts. On September 10, he had a convulsion and died suddenly.

The autopsy showed interstitial nephritis, chronic pachymeningitis, hypertrophy of the left ventricle of the heart, oedema of the lungs, and chronic adhesive pleurisy.

In this case we have a typical history of chronic interstitial nephritis, ending fatally in a lad of sixteen years of age, which had existed certainly for two years, and probably for many more years, as for two years he had symptoms of uræmic poisoning.

CASE V.—A girl of thirteen years entered the Boston City Hospital, June 18, 1887. When an infant she had diphtheria; otherwise no illness. Three weeks before entrance she had nausea, no headache or vomiting; there was some œdema of the legs. On entrance she felt well, her only complaint being œdema of face, abdomen and legs. The urine was pale, of specific gravity of 1020; one-fourth per cent. of albumen; in the sediment numerous hyaline and fine granular casts, some of the casts containing fat. After remaining in the hospital for a month, she left against advice without showing any improvement.

CASE VI.—A boy, seven years of age, entered the Boston City Hospital, September 1, 1887. He never had scarlet fever or diphtheria. On entrance there was general œdema; pulmonic second sound was accentuated. The urine was yellow, of specific gravity of 1020; it contained about one-half per cent. of albumen; in the sediment were numerous hyaline and granular casts, some blood, and a few fatty casts. During a stay of four months in the hospital, there was a marked diminution in the œdema, and improvement in his general health. There was no change in the character of the urine.

CASE VII.—A boy, eight years of age, entered the Boston City Hospital, June 24, 1891. For five weeks before entrance he had general œdema of face, legs and abdomen; during the whole of the time he was confined to the bed. The urine was brown in color, specific gravity 1030; two to three per cent. of albumen. In the sediment were numerous hyaline and granular casts, epithelial, blood and fibrinous casts.

Face puffy, general œdema of the extremities and marked ascites. Heart negative. One week later the urine was pale in color, specific gravity 1017; one per cent. of albumen; in the sediment were numerous fatty elements.

During July occasional vomiting; great discomfort from ascites; œdema of the legs and scrotum marked.

On July 6, the urine contained two per cent. of albumen and there was a good deal of blood in the sediment. During July and August there was much oedema of the legs and scrotum, with ascites sufficient in amount to produce a great deal of discomfort from pressure. No vomiting or headache.

On August 20, the ascites was so marked that it was considered advisable to tap the abdomen and a large

amount of fluid was drawn off, about four-fifths of a pailful. This operation was immediately followed by great relief of all the untoward symptoms; the urine increased in amount and the œdema of the extremities rapidly decreased. An examination of the urine August 27th, showed a pale color, specific gravity of 1010; albumen, slight trace; some blood; no casts found. During September his general condition has been good; the amount of albumen in the urine has varied, and the sediment has shown hyaline and granular casts, some fat casts, and at times, blood.

The ascites has not returned; there is slight œdema of the legs, not always present. No enlargement of the heart; no murmur.

CASE VIII.—In August, a boy of fifteen years, presented himself at the out-patient department of the Boston City Hospital. When two years of age he had scarlet fever; his general health was good, but not robust. His mother said that for several months he had been failing in strength; his appetite was fair; occasionally he had slight headache and some vomiting. Physical examination showed a "pigeon-breast" deformity of the sternum; his heart was enlarged and the second pulmonic sound was much increased; apex in line of nipple; no murmur. Examination of the urine: Specific gravity 1018; one-fourth per cent. of albumen, and the sediment contained a few hyaline and fine granular casts with an occasional epithelial cast and a few red blood globules. He was somewhat anæmic. A month later, after passing four weeks at the seashore, and taking iron he felt stronger. An examination of the urine was practically the same, except that the albumen was less in amount.

The enlargement of the heart and the presence of casts in the sediment in this case, are sufficient to remove the case from the category of cases classified as the "albuminuria of adolescence." The fundum of the eye was normal. No œdema of extremities. Some of these cases may entirely recover from the lesion of the kidney as demonstrated at the time of the examination of the urine, but I consider them worthy of mention as calling attention to the fact that a chronic disease of the kidneys may be present in children as in adults, and yet not always give rise to symptoms suggestive of renal disease unless

the urine is examined. In the last case mentioned the hypertrophy of the heart alone suggested the possibility of renal disease.

I am indebted to the staff physicians of the Boston City Hospital for permission to report the cases which entered that hospital.

TWO CASES OF ACUTE PRIMARY NEPHRITIS IN INFANCY.*

BY L. EMMETT HOLT, M.D.,

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ACUTE primary nephritis in infancy is certainly not a common disease. The two cases here reported are submitted to this Society with the hope that they may shed some light upon this obscure subject, which has as yet received so little attention. Following that strange law of coincidence so frequently seen in medicine, both cases came under observation within a few months of each other.

The diagnosis in the first case was overlooked during life; while in the second case it was readily made from its resemblance to the first.

CASE I.—A female child, six months old, was a patient in the Babies' Hospital. On admission it was stated that the child had been well until about six days before. It had been nursed by the mother up to that time, when it was taken with what was apparently an ordinary attack of indigestion, frequent vomiting, and fever. The symptoms continuing for three days, the infant was weaned by the advice of a physician, and a diet of condensed milk substituted. No improvement followed this change, and as the symptoms gradually grew worse the child was brought to the hospital,

She had never to the mother's knowledge had any of the infectious diseases.

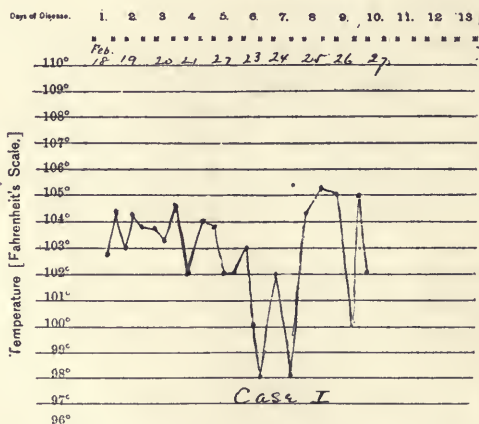
On admission, February 18th, the general nutrition was good, the child being plump, well nourished, weight $13\frac{1}{2}$

* Read before the American Pediatric Society, Washington, D. C., September 23, 1891.

pounds. The fontanel was widely open and there were several small spots of cranio-tabes to be felt over the skull.

The tongue was dry, but mucous membranes of mouth, nose, and pharynx were normal; skin likewise normal; no enlargement of external lymphatic glands; spleen and liver normal in size; heart normal; a few coarse râles over both lungs behind. There was a good deal of prostration, the infant appearing to be seriously ill; temperature, 102.8° F., pulse and respiration both rapid but regular.

During the first three days in the hospital, February 18th, 19th and 20th, there was increasing prostration with a dull apathetic mental condition. The infant coughed occasionally, but daily examination of the lungs revealed



only a few coarse moist râles. There was some dyspnoea, the alæ nasi were active and the respiration at times rose to 76 per minute. The temperature did not fall below 103° and ranged between this point and 104.5° . The vomiting soon ceased and the child took twenty ounces daily of a dilute milk and cream mixture.

The case was regarded as one of probable pneumonia.

During the next three days, February 21st, 22d and 23d, the signs in the chest were rather less marked, the respiration ranged from 40 to 50 per minute, and the pulse about 150. The temperature still remained elevated, but fluctuated irregularly, usually between 102° and 104° , once dropping to normal. No change in the general symptoms, except that the child was weaker and extremely

pale ; still dull and apathetic with no other pronounced cerebral symptoms.

A distinct remission of the temperature upon February 23d and February 24th led to the suspicion of malaria, and the spleen now appeared to be slightly enlarged, as it was distinctly felt below the ribs.

Quinine was accordingly tried in full doses, but without any effect. The pulmonary signs were still very few and inconstant, the respirations ranged from 38 to 40 per minute, and the pulse about 150.

On February 25th and February 26th the strength failed steadily and the anæmia increased. The face had now assumed the waxy look so resembling that of an old case of nephritis, and attempts were made to collect urine for examination, but these were unsuccessful as the bowels moved almost every time water was passed. There was no œdema, and the urine had not been noticeably scanty during the illness.

The temperature during the last three days fluctuated irregularly, nearly reaching 105° every day. The child's pupils were small but usually responded to light ; once nystagmus was noticed.

She sank gradually and died of exhaustion on the morning of February 27th in the eleventh day of her stay in the hospital and upon the seventeenth day of her illness.

Let us briefly review the symptoms ; they were :

(1) Continuous fever of an irregular type, but generally high.

(2) Dulness and apathy with no focal symptoms of brain disease.

(3) Marked anæmia, without emaciation.

(4) Moderate gastro-intestinal disturbance, marked in the early part by vomiting, and late by loose evacuations from the bowels.

(5) Evidences in the lungs of a moderate amount of bronchitis of the larger tubes.

The obscurity of these symptoms is so evident that I will not dwell upon them, but give the results of the autopsy, without which we must have been left entirely in the dark regarding their explanation.

The *autopsy* was held fourteen hours after death. Body well nourished.

Head.—Meninges œdematous. Brain sinuses empty. Brain substance normal.

Chest.—A few small nodules of broncho-pneumonia in both lower lobes behind and superficially situated, the

largest being less than one-half inch in diameter. Six or eight hæmorrhagic infarctions in the lower lobes, the largest one being three-quarters of an inch in diameter. The lungs, posteriorly, showed moderate congestion and were everywhere œdematous. There was a slight amount of general bronchitis.

The heart was normal.

Abdomen: Spleen normal. Liver pale and slightly fatty; size normal. Stomach normal and empty. Small intestine contained healthy fecal matter, and its mucous membrane was normal, as were Peyer's patches.

The colon showed no recent changes, but there was quite an unusual amount of swelling in the solitary lymph nodules.

Mesenteric glands slightly enlarged.

The kidneys were decidedly enlarged, fully one-third larger than normal. They were unusually soft. The surface of a grayish-yellow color, mottled with red. Capsules not adherent. On section, the cortex was slightly thickened, of a grayish-yellow color, mottled in places with red, and here and there were wedge-shaped areas of a uniformly yellow color; pyramids very yellow in color and markings indistinct.

Microscopical examination of the kidneys by Dr. Martha Wollstein, Assistant at the Laboratory of the Woman's Medical College: "The cells lining the capsules of the glomeruli are proliferated, and those covering the tufts are so to a very marked degree. The epithelium lining the tubules is everywhere swollen and granular, and in some places peeled off. The lumen of the tubules is filled with exudative products, granular casts. The stroma is markedly infiltrated with small, round cells; in the neighborhood of the small blood vessels these are especially crowded. The blood vessels are congested. The wedge-shaped areas seen by naked eye are made up of infiltrations of small round cells. The anatomical diagnosis is *acute diffuse nephritis*."

CASE II.—Female child, thirteen months old, an inmate of New York Infant Asylum for eight months. Nursed by mother and well nourished, weighing 18½ pounds at beginning of attack. Never had measles, scarlet fever or diphtheria; taken suddenly ill, without any assignable cause, on June 12th, with temperature 103.8°.

On examination, throat and chest negative, spleen not felt; child rather dull, several molars nearly through; bowels not moved during the day.

During next three days, June 13th, 14th and 15th, the bowels moved from two to three times daily; the temperature continued high, from 101° to 105° . A few coarse râles were found in lungs, physical examination otherwise negative; rather restless; nursing well.

On June 16th, 17th and 18th, there was occasional cough, increasing prostration, and pallor noted; no further signs in chest; slight diarrhoea; no vomiting; pulse 120 to 140; respiration, 40 to 60. Temperature still high, from 102° to 105° , partly controlled by baths. Bowels continued rather loose, from two to four movements a day. Two molars came through on the 17th.

On June 19th, 20th and 21st, there were from one to two passages daily from the bowels, yellow and thin in character, still no vomiting; child growing steadily weaker, and pallor more striking. She now became more irritable and restless; occasionally there was twitching of the facial muscles; these symptoms alternated with drowsiness. Pupils normal; no rigidity of neck. Pulse and respiration regular, frequency about as before. Temperature up to 105° every day, and once 106° . Chest still continues negative; has cut two more teeth.

June 22d, 23d and 24th.—Tongue dry; condition more apathetic; quiet most of the time; irritable and cries if disturbed; pupils at times irregular, and respond feebly; pallor extreme; respiration 40 to 50; pulse 140 to 150, and weaker.

June 25th, 26th and 27th.—General condition practically unchanged; at times quite bright, but greater part of the time dull. Pulse 150 to 180, and weaker; respiration still regular. Temperature a little lower, 101° to 104° . One to four thin movements daily.

June 28th and 29th.—Passages rather more frequent, four to five daily. Slight cough; lungs still negative on physical examination; increasing prostration; nourishment taken poorly.

On June 30th I saw case for first time. I found a plump well-nourished infant, with no signs of emaciation, but with extreme pallor; the skin had a waxy look; lips almost bloodless; fontanel normal; no rigidity of neck; a moderate amount of thrush in mouth; throat negative, and also the lungs, with the exception of a very few coarse râles behind; heart normal; spleen felt just at edge of ribs; liver one inch below ribs; abdomen natural: no retraction, no tympanites, no eruption; a moderate amount of dyspnoea, and at times a slight amount of cyanosis.

There was a very slight amount of swelling of the feet and ankles, but no puffiness under the eyes. Slight muscular twitchings of left leg.

The infant had now been ill nineteen days, during whole of which time the temperature had been steadily high, touching 105° almost every day, and usually fluctuating between 101° and 105° . Pulse gradually becoming more rapid and weaker ; respiration accelerated but not in proportion to the rise of temperature. In addition, slight diarrhœa most of the time, averaging from three to four movements a day. At no time any vomiting ; the nervous symptoms slightly more marked during last four or five days, but not at all characteristic ; added to this only a marked amount of anæmia, without emaciation. The family history was negative, and the examination justified us in excluding meningitis, malaria, and typhoid fever. It seemed impossible that the intestinal disturbance could be the cause of the fever and the anæmia, because of the absence of emaciation. The urine had been passed freely, it was stated, during the whole attack, and an examination made early in the illness showed nothing abnormal.

The resemblance of the case to the one first reported, particularly the fever and the anæmia without evident explanation, led me to suspect acute nephritis in this one. An examination of urine showed about three per cent. albumen by bulk ; under the microscope, pus cells in quite large numbers, epithelial and granular casts, and renal epithelium, all being very abundant ; a few red blood globules. An examination of the blood showed the changes of ordinary anæmia only.

During two following days there was no essential change in symptoms except gradually increasing prostration and drowsiness ; some difficulty apparently in micturition, but the water seemed to be passed freely ; it was impossible to collect enough to form any idea of the daily quantity.

A second examination showed essentially the same urinary conditions. Death occurred from exhaustion, July 2d, on the twenty-first day of illness.

Autopsy.—Twenty hours after death. Body well nourished. Cerebro-spinal fluid slightly in excess of the normal. A non-adherent, partly decolorized thrombus in superior longitudinal sinus. Brain and meninges in other respects normal.

Lungs anteriorly pale and anæmic, posteriorly a few small spots of broncho-pneumonia. Pleura normal.

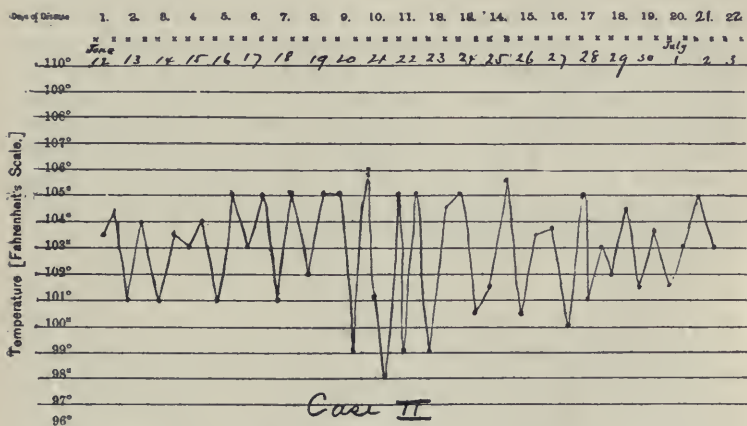
Heart very pale and walls slightly fatty, otherwise normal.

Stomach pale, but in other respects healthy. The small intestine contained thin faecal material. The mucous membrane of the ileum was pale, that of the jejunum bile-stained ; no evidences of enteritis.

The colon contained thin greenish matter but the mucous membrane was pale.

Liver normal in size, but very pale. Spleen slightly enlarged, also paler than normal. Pancreas normal.

Kidneys much enlarged ; weight, $3\frac{3}{4}$ ounces. They were very soft, capsules non-adherent, surface of a yellowish-gray color, with a fine red mottling. There were many small circumscribed areas which were very yellow,



these varying in size from a pin's head to a fourth of an inch in diameter. On section the cortex was thickened, normal markings almost obliterated ; color like that of the surface. Pyramids of a yellow color streaked with red. The yellow areas of the surface extend into the organ as small wedge-shaped masses.

Microscopical examination of this case was made by Dr. Eugene Hodenpyl, Assistant at the Laboratory of the College of Physicians and Surgeons. The lesions were essentially the same as those described in Case I., with the exception that the changes in the glomeruli were not so well marked, while the areas of round-cell infiltration were larger and more numerous. The anatomical diagnosis was the same, *acute diffuse nephritis*.

In 1887 I published (ARCHIVES OF PEDIATRICS, Vol. iv., pp. 1 and 103) a series of six cases of acute nephritis, and collected from medical literature enough to make twenty-two cases, all that I could find recorded at that time. Of these six cases, three, Cases I., II. and IV. were in all respects similar to the cases reported in this paper, and the diagnosis was confirmed by autopsy and microscopical examination of the kidneys in two of the cases. Since the publication of that paper I have not met with a case until those whose histories have been here detailed. A closer examination of the records of these five cases reveals a very striking resemblance between them. They were all between the ages of six and thirteen months. There was in all a prolonged febrile attack; this lasted in the shortest case seventeen days, in the longest one, twenty-six days. In no case was there marked dropsy; in only one case was the amount of urine noticeably diminished. Nervous symptoms were present in all. The lesions, both gross and microscopical, in the four cases in which autopsies were obtained were strikingly similar, differing only in degree. The records of this group of cases make up a chapter in the literature of diseases of the kidneys which I think has not before been written. They show the great necessity of examinations of the urine in all obscure febrile attacks in children.

DISCUSSION.

Dr. SEIBERT:—In the beautiful case related by Dr. Holt, the question is, where did the infection come from? The frequent occurrence of mild attacks of tonsillitis in infants that are so often overlooked and are described as one-day fevers, if we examine carefully, we find acute tonsillitis. Now there is an entrance, an opportunity for infection. Why could not infection come from this source? I want to call attention to a fact in one of the cases described by Dr. Putnam. The child did not have scarlet fever nor diphtheria, but did have varicella. I had two cases following varicella and we will find this result more frequently than we think. In regard to the chronic cases I think the same is true. We have acute attacks, following some little affection that we have made nothing of and then later in the disease kidney trouble is found. Therapeutics were not discussed, but I would like to mention a new combination. It is called diuretine, a combination of theobromine and salicylic acid. Since the first of January I have made use of this in heart and kidney disorders

and it is the quickest diuretic I have seen. I use it in nephritis following scarlet fever.

Dr. FORCHHEIMER :—It is years ago that I had my attention called to this connection by Prof. Hebra, who may have had a hobby, but he claimed that catching cold did not exist, basing his views on a great number of cases. This catching cold question has done a great deal of harm to us as physicians in connection with scarlatina. The predisposing cause seems to be in the nature of the cause. I have had an epidemic of scarlatina in Cincinnati, lasting eighteen months without a case of nephritis. I have seen epidemics with thirty per cent. of cases of nephritis. I have tested this question of catching cold. Avoid exposure as you will certain ones will and certain ones will not take nephritis. My method has been to take a certain number of cases, treat them by absolute rest, closing the windows, putting up screens, and avoiding exposure to draughts, then taking an equal number to expose them as much as I could, the result was the same in both instances as far as nephritis was concerned. Of course cases in the same experience only can be utilized. I think this is a very fruitful subject for experiment if we go about it in an impartial manner.

Dr. KOPLIK :—I have been working the past year in this line and am interested in the pathology of these cases—the changes which take place in scarlet fever and their exact causes. According to the most advanced researches the cause is microbic. If the microbes which have been isolated in these cases are injected into a small animal you find processes in the kidneys almost the exact counterpart of those which have been described in diphtheria and scarlet fever. Nephritis has been thus produced artificially. There is the necrobiosis and swelling of epithelial cells almost the exact counterpart of the disease in the human subject.

Dr. SMITH :—Will you please tell us what the microbe is?

Dr. KOPLIK :—A streptococcus identical with the streptococcus of Babes. Dr. Prudden has also described these streptococci in the lungs of diphtheritic cases in complicated scarlet fever.

Dr. PUTNAM :—The question is, whether the usual opinion in regard to the cause of nephritis after scarlet fever is exposure or not. The question is whether plenty of fresh air is better than a diminished amount, and we ought not to consider it as anything more than this:

Whether children are to be kept in bed for four weeks after exposure to scarlet fever, or whether they shall be allowed to be up and around. I believe in bathing freely, keeping the air of the room cool and fresh, and not keeping the child in bed all the time, for this is very weakening. I do not want to say that the kidneys cannot be congested by the child's being dipped in cold water. I have never been able to see any evidence that exposure had caused scarlatinal nephritis. It occurs often in the cases best protected. It has been my practice to have children with scarlatina bathed all over once or twice a day.

Dr. KOPLIK :—I am pleased to see that the President has made the point he has. I should be ashamed to have the question left so one-sided; though we think the nephritis is mycotic, we must recognize other predisposing causes also. We must guard our patients against all needless exposure.

Dr. CARR :—The cases we see in our patient departments are those that are called scarlatina, or a mild form of scarlet fever. From the nature of things we see more of these than of the severer types, and the causes of nephritis in these cases are probably exposures and over-exertion rather than simple fresh air. Hospital statistics have shown the lowest percentage of nephritis to be in the patients kept quiet in bed.

Dr. FRUITNIGHT :—In many of the mild cases which are allowed to go about, it is not the cold itself, but the exposure that acts as the exciting cause. Just what the essential systemic cause is, we cannot tell.

Dr. HOLT :—Have any of the gentlemen here met with the purulent form of nephritis?

Dr. NORTHRUP :—I have met with one case. An infant suffered two months and died. No diagnosis was made and at the *post-mortem* its kidney was found full of pus.

Dr. SMITH :—I am somewhat skeptical as to certain cases of nephritis in children reported as primary. On careful examination of cases which seemed to be primary at first, I have now and then found, as Dr. Seibert says, that there has been probably a trivial antecedent diphtheria or scarlatina not detected. A child has been slightly sick with a little redness of the throat, but it was so trivial that the doctor who saw the case for me did not call again. A week later the child had what proved to be a fatal nephritis, which, I have no doubt, was due to a slight diphtheria. In one case of severe nephritis, I was told that the child had been previously well and daily out of

doors until the kidney disease began, and that there was no diphtheria or scarlatina in the vicinity to which it could have been exposed. But I found subsequently on inquiry, that this child and its sister had a rash a few days previously, which was thought to be due to the summer heat. Nevertheless, that there is a primary nephritis in children as in adults cannot be doubted, due probably to taking cold, and cases of primary nephritis reported by so thorough an investigator as Dr. Kolb, I am prepared to accept as such.

Dr. JACOBI:—It was a surprise to me to hear that the text books contain nothing about acute nephritis in the very young. No doubt Dr. Holt has looked over our own and the European authorities and knows what they say, I shall look them over myself, for my own satisfaction. A text book cannot be expected to contain a full account of all diseases, for each alone would form a large monograph. Such omission simply proves that this writer was not in the way of seeing such cases. It is a surprise, however, that it is not mentioned, for I have seen twenty or more cases. Wherever we find cases of nervous disturbance, the urine is examined. I have made the diagnosis of primary nephritis in many cases. In a baby of five weeks, in the practice of a well-informed practitioner, a member of this society, who had overlooked this cause of the dangerous symptoms. I am positive that I have seen a few cases of the primary form every year. I never leave my house without a small and medium size catheter, and often have occasion to use them. I have seen a number of these cases in which the diagnosis made during life was confirmed at the autopsy. There are plenty of opportunities for children to have nephritis. Even in the first week of their life they are so threatened by lesions produced by uric acid infarcts and stone. Of course, the causes which affect the infant are not so numerous as in the adult, except the eruptive diseases, but I do believe that exposure to cold does produce nephritis in some cases. I have seen children die within three or four days from nephritis, the result of exposure to wet and cold. There are a number of other cases, for instance, those which complicate intestinal diseases. It is true that many cases of vomiting and diarrhoea are merely symptoms of nephritis. A number of cases supposed to be cholera, even the Asiatic, are found to be acute nephritis. On the other hand, where we have to do with an acute or sub-acute intestinal catarrh, a prolonged seizure may give rise to secondary nephritis. I

am positive that it will be found to be much more frequent than it was considered to be.

Dr. JACOBI:—I want to ask whether Dr. Seibert has responded to the question or not.

Dr. SEIBERT:—Do I permit exposure to draught? Yes; all I can get hold of.

Dr. JACOBI:—We all want fresh air, but Dr. Seibert is inconsiderate. If I open the window, I want a screen between the bed and the window. We want air, but not draught.

Dr. ROTCH:—I wish to protest against what has been said in regard to taking cold. Exposing a child with scarlet fever to cold, is wrong, I believe it is criminal. Perhaps it is not scientific to say catching cold, but something comes from the exposure and scarlatinal nephritis, may, I think, be precipitated by lack of care in the nursing, allowing internal congestions to take place from too rapid and unnecessary surface evaporation.

Dr. SEIBERT:—I am sorry I have committed that outrage so frequently. Among my own relatives scarlet fever has carried off a young man, aged twenty-four in thirty-six hours, his sister, a girl of seventeen, was down with scarlatinal diphtheria, purple cheeks, enormous glandular swelling, high fever, and the other symptoms. The father was down with diphtheria, the mother with scarlet fever and diphtheria. I had seven patients there. I took the stove out of the room, though there was snow on the ground, and had the four windows opened, and put ice to the throats of the patients, and they got well. This, to my mind is the most satisfactory treatment. When allowed, I always treat scarlet fever this way. The worse the case, the cooler the room. I would not roll a naked child in the snow, but there is sense in forbidding pure, cold air, in an infectious disease, where the cold air itself is the best stimulant we can get.

AN extremely important fact is also this, that the addition of chloride of sodium delays and renders difficult the firm curdling of the milk by rennet (Pflüger's Arch. XIII., p. 93). Thus it ought to be added to cow's milk as a general rule, and to woman's milk when the large curds brought up by vomiting, or evacuated by rectum, exhibit an undue amount of coagulation.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

Clinical Memoranda.

A CASE OF RUPTURE OF THE SPLEEN IN A NEWBORN INFANT.

BY J. W. BALLANTYNE, M.D., F.R.S.E., F.R.C.P.E.

Edinburgh.

RUPTURE of one or other of the abdominal viscera is an occasional cause of death in the newborn infant, and is of interest, both from the pediatric, and from the medico-legal point of view. The following case occurred in the Edinburgh Maternity Hospital during Prof. A. R. Simpson's quarter, and through his kindness I was enabled to make a *post-mortem* examination of the infant:

M. G., an unmarried primiparous woman, nineteen years of age, was delivered of a living male child on November 28th, at 4 A.M. The labor lasted eight-and-a-half hours, the head presented in the L. O. A. position, and no interference whatever was necessary. From the menstrual history it seemed probable that the pregnancy had advanced to the seventh or eighth month, when labor set in. The infant weighed six pounds, six ounces, and measured 51 cms. in length; the placenta weighed one pound, six ounces, and the cord was 59.5 cms. in length. The mother exhibited markedly the signs of secondary syphilis. The child lived for two days, and then died somewhat suddenly without any very evident cause. There was a rumor that it had on one occasion been allowed to fall out of bed, but this rumor was never confirmed. On the skin, which was of dusky, almost jaundiced hue, was a purpuric eruption: here and there over the surface of the trunk and limbs were small patches of ecchymosis, some of a dark blue, or violet tint, others more nearly red in color. The stump of the umbilical cord was still attached to the abdomen which was markedly distended.

Autopsy.—Traces of the caput succedaneum were found over the vertex of the head. The brain was pale, there

was slight meningeal hæmorrhage on the convexity of the cerebrum. The thymus gland was pale, but contained no suppurative foci ; the lungs were expanded with air save in limited areas, which under the microscope showed the air-vesicles filled with exudation ; there were numerous sub-pleural ecchymoses ; the heart measured 5 cms. vertically, 3.5 cms. transversely at the base, and 3 cms. antero-posteriorly ; the cardiac muscle was pale, the wall of the right ventricle was very nearly as thick as that of the left, the foramen ovale was completely filled with membrane, the ductus arteriosus was closed, the valves and openings of the heart were normal. The liver was large, pale, and exsanguine, its capsule was smooth, and there were no deposits in its tissue. The spleen was enlarged, soft, congested, very friable, and of a dull purple color ; it measured 7.3 cms. in length, about 3.5 cms. in breadth, and about 3 cms. in an antero-posterior direction. Near the hilum in the antero notched margin were two fissures, or tears, in the splenic capsule, and tissue ; each was about 1 cm. deep, and from each projected some fragments of blood-clot which were continuous with the great mass of clotted blood which distended the abdominal cavity. The intestines were stained dark by the surrounding blood, and contained very little meconium. The kidneys were pale, and under the microscope showed some cloudy swelling of the cells of the tubules. Part of the blood in the abdomen was fluid, and lay to the front, the rest was clotted, and the clot was especially firm in the neighborhood of the spleen. Both testicles were in the scrotum. There were no signs of peritonitis. The bones showed an early stage of syphilitic osteo-chondritis.

I can only find two recorded cases which at all resemble this one. The first was reported by Charcot in 1858 (*Gazette des Hôpitaux*, p. 573, 1858). An unmarried girl 23 years of age, and showing no signs of syphilis, was delivered at the eighth month of an infant that although stillborn was resuscitated and lived for half an hour. The labor was natural, and required no interference. The pregnancy had been marked by no incident, save by a fall on the head a month before labor set in, and by another fall ten days after the first. Since the first accident, the foetal movements had been felt to be less energetic. The woman could give no history of the father of the foetus. The face, hands, and feet of the infant were covered with the bullæ of pemphigus ; some of these had burst, and were represented by small ulcers, others still

contained a sero-purulent fluid. The abdomen was very large, and on the left flank and upper part of the thigh was a large violet-colored ecchymosis in which the infiltration of blood did penetrate below the subcutaneous tissue. The thymus, heart, and lungs were healthy, and the last-named organs were uniformly filled with air; on opening the abdomen it was found that its cavity was filled with a large quantity of black blood; part was clotted, and the clot was especially voluminous near the spleen. Some liquid blood had passed into the right tunica vaginalis into which the testicle had not yet descended. The liver was very large and pale, the kidneys were normal. The spleen was voluminous, but of normal consistence; on its internal aspect a little in front of the hilum was a cleft passing into the splenic tissue, about 3 cms. in length, and directed in the long axis of the organ. The blood clots were prolonged into this cleft. There was no peritonitis. From the apparently healthy state of the splenic capsule and tissue, Charcot thought that the rupture could only be due to violence, during pregnancy, or during labor, and since the confinement was easy he was led to look for a cause during pregnancy. The first fall took place a month, and the second about fifteen days before labor, and yet the blood in the abdomen of the infant had none of the appearances of blood effused for fifteen days or longer. Charcot is forced to admit that the cause of the rupture must be left uncertain.

The second case was reported by L. Kleinwächter in 1872 (*Vierteljahrschrift für die Praktische Heilkunde*, Bd. 114, S. 94). A girl 22 years of age, having enlarged inguinal glands, and confessing that she had had syphilis and had been treated for it by iodide of potassium, came into the Prague Maternity in labor with her first child. The foetal head was in the R. O. P. position; and as the heart-sounds were becoming weaker, forceps were applied, and a small male infant was easily delivered twenty-six hours after the beginning of labor, and twelve hours after the escape of the waters. The infant was premature, it weighed four pounds, fourteen ounces, and exhibited on various parts of the body, and especially on the scrotum and lower limbs numerous blebs of pemphigus specificus. The blebs varied in size from that of a lentil, to that of a pea, some were intact, others ruptured. The child died in four hours; its marasmic appearance became more marked, and it gradually sank. The *post-mortem* examination revealed the following conditions: the body was

rather well developed, the skin was pale in color, the right testicle was in the scrotum, the left had not yet descended, the tissues of the scalp were soaked in blood, there was thick-flowing blood in the superior longitudinal sinus, and the meninges were congested. The brain substance was soft and friable, and studded throughout with dark spots of blood. The subcutaneous tissue was somewhat rich in fat, and the muscles were markedly pale. Thymus gland was somewhat large and pale brown in color. The mucous membrane of trachea, larynx, and pharynx was pale. The thymus gland was large, pale in color, and showed numerous foci of pus. The lungs were dark red in parts, in other parts pale in color; only at a few points were the vesicles expanded with air. The heart was normal save for the pale appearance of its muscle; the foramen ovale was open, and the ductus arteriosus was very wide. In the peritoneal cavity was much fluid blood, and near the spleen were many clots. The liver was large, its tissue was soft, friable, yellowish-brown in color, and here and there were grayish-white spots of firm exudation. The spleen was very large, it was nearly 8 cms. in length, and the same in breadth; its capsule was delicate and stretched, its tissue was soft, friable and congested, and the pulp was firm. At the hilum the capsule appeared separated at several points, the tissue was there torn to the depth of 1.3 cms., and numerous pieces of blood-clot were adhering to the rents. The kidney capsule was delicate and easily separable, the renal tissue was soft and friable, and the pyramids were dark violet in color. The intestinal mucous membrane was pale throughout, the cæcum contained meconium; the left testicle was placed close to the inguinal canal, the right was in the scrotum, was congested and showed numerous ecchymoses. Kleinwächter did not think that the use of the forceps was the direct cause of the rupture of the spleen, but rather ascribed it to the friable condition of the spleen and its capsule due to the congenital syphilitic state of marasmus and to the long duration of labor.

These three cases present striking resemblances to each other. In all there was rupture of the spleen, and in all the hæmorrhage from the rupture was the immediate cause of the death of the infant. In all, the mother was a young, unmarried woman, the labor occurred prematurely, and the infant died soon after birth (in half an hour in Charcot's case, in four hours in Kleinwächter's, and in two days in mine), the labor was easy and required no interference;

in one case (Kleinwächter's) forceps were required, but the infant was very easily delivered with their aid. In two cases (Kleinwächter's and mine) the mother was distinctly syphilitic ; in Charcot's case it is stated that she was of sound constitution, but as there is no history of the father of the foetus it is possible that he was syphilitic. In each of the cases the infant exhibited a skin eruption ; in Charcot's case and in Kleinwächter's it had the characters of a syphilitic pemphigus, and in mine it consisted in petechial hæmorrhages under the skin. The spleen in each case was enlarged; in Kleinwächter's case and mine it was also very soft, friable and congested, but in Charcot's it was stated to be normal in consistence. The other viscera were pale, in some cases they also showed hæmorrhages, and others they resembled the organs of syphilitic foetuses. In each infant the peritoneal cavity was distended with blood, partly fluid, partly clotted, and this blood appeared as if it had been recently effused. In each case the clot was largest in the neighborhood of the spleen, and could be traced to the rents in the splenic tissue. These rents were situated in nearly the same position in each case. In Charcot's specimen, and in Kleinwächter's, one of the testicles was still in the abdominal cavity; but in my case both were in the scrotum. It is not easy to determine what was the cause of the rupture of the spleen in any of these cases. Charcot's patient had had two falls during pregnancy; but, as the author himself admits, it was difficult to regard them as the cause of the hæmorrhage, for the effused blood had not the appearances it should have had if it had been poured out fifteen days or longer before birth. In the other two cases no disturbing element nor dangerous accident is recorded as having occurred during pregnancy. In none of the cases was there anything in the labor to account for the rupture; even in Kleinwächter's case, in which forceps were employed to deliver the head, the interference was very slight. In two of the cases at least, and perhaps also in the third, the foetus was syphilitic, and in this fact is to be found, in my opinion, the predisposing cause of the rupture. In my case the spleen was so friable that it was difficult to handle it without increasing the rents in its substance, and it seems to have been equally brittle in Kleinwächter's specimen. It is not difficult to see how in the case of an infant with such a friable organ, which was also enlarged and projected, therefore, from under cover of the liver, some careless handling either at birth or soon afterwards may have led to the tearing of the vis-

cus. It is true that it is difficult to accept this explanation in Charcot's case, for there it is stated that the spleen, although voluminous, was of normal consistence. Still, I am of the opinion that in each of these cases the predisposing cause of rupture was to be found in the syphilitic changes in the spleen, and the exciting cause in some careless manipulation at the time of birth or very soon afterwards.

GENERAL TUBERCULOSIS, WITH LATENT SYMPTOMS.—PATIENT IN APPARENT HEALTH UNTIL FOUR DAYS BEFORE DEATH; DEATH FROM HÆMORRHAGE FROM A SINGLE TUBERCULAR ULCER OF THE ILEUM.

BY L. EMMETT HOLT, M.D.,

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CASE I.—J.S., æt, eleven months; inmate of the N. Y. Infant Asylum. Had been nursed by mother since birth, and was in fair general condition. The only thing out of the way which had been noticed in the child, was a cough, which had been moderately severe for about six weeks. It was not accompanied by fever or other general symptoms, and the chest was not examined. Four days before death, without any premonition, the child passed about four ounces of thick blood by the bowel; it was dark in color, partly mixed with the stool, partly in clots. He seemed bright, rather pale; temperature morning and evening was 99°; he vomited the breast milk once. A large injection of nitrate of silver solution was given, and during the two following days the hæmorrhage did not return.

On the second day temperature was 100°, morning and evening; child vomited once; seemed considerably prostrated; stimulants were given, 3 j of whiskey every two hours, and bismuth in large doses by the mouth. He seemed rather drowsy, but had no distinct cerebral symptoms.

On the fourth day the bloody passages returned; there were seven stools, the last ones consisting almost of pure blood. The blood was in clots chiefly, but in the last three stools the blood was clear and fluid. It was passed without pain or tenesmus, and the last passages were not

mixed with faecal matter. The general symptoms now assumed the type commonly seen in large internal hæmorrhages; there was great pallor, rapid, feeble pulse, extreme restlessness, dyspnœa, gradually increasing prostration, finally slight convulsions and death at 2.30 o'clock on the morning of the fifth day.

Repeated examinations during life gave no clue whatever to the hæmorrhage, and not even a probable cause was discovered. The highest temperature was just before death, when it reached 101°.

Autopsy: Ten hours after death. Body well nourished. Brain not examined. Lungs: right lung normal, except slight emphysema anteriorly. At the extreme apex of the left lung, a small area of old consolidation was found, now chiefly fibrous, and in this, were two or three cheesy nodules about one-fourth of an inch in diameter, and one small cavity. A few miliary tubercles on the surface of the lung in this neighborhood. Bronchial glands greatly enlarged upon the left side, the largest the size of a walnut, almost all cheesy, and some softened at their centres. Glands on the right side enlarged, but not cheesy. Thyroid gland: about twice normal size; filled with minute cheesy nodules, many of these broken down. Heart: pale, and slightly fatty. Mesenteric glands enlarged and cheesy. Intestines: the mucous membrane of the colon stained with blood; the solitary follicles enlarged; no ulcers. Colon contains a small amount of fluid blood. Solitary follicles of the small intestine and Peyer's patches showed moderate amount of old infiltration. Eighteen inches from the ileo-cæcal valve was a fresh-looking ulcer with ragged edges, about one-fourth of an inch in diameter, irregular in shape; the mucous membrane about it is red and infiltrated with blood; ulcer goes to the muscular coat of the intestine. The small intestine below this point was filled with blood, dark in color like that seen in the colon. Above this point no blood is seen, but small tubercular ulcers are seen throughout the small intestine, situated chiefly in the Peyer's patches; none have the appearance of being of very recent origin.

Microscopical examination of the ulcer showed that upon its surface were several open blood vessels of considerable size.

CASE II.—C. H., eight months old; admitted to the Babies' Hospital one week before death. The father died of tuberculosis three months before. Child was reported

to have had some acute pulmonary disease three months before admission, lasting two weeks; some cough ever since then. For the last two weeks, slowly but steadily losing flesh.

On admission, the child was fairly nourished; physical examination showed that the spleen was enlarged, reaching about one-and-a-half inches below the ribs, and coarse and fine râles were found throughout the lungs. These were chiefly behind; there was no dulness; no signs of consolidation. There were evidences of moderate rickets. The cough was quite severe but there was no especial change in the child's condition for four days after admission. The temperature ranged between 100.5° and 102°.

On the fifth day there was increasing prostration, and in the morning, an attack of general convulsions, chiefly affecting the extremities. The abdomen was natural, fontanel not bulging, pupils normal; there was slight opisthotonos; child stupid and could be only partially aroused. The bowels had been regular from the time of admission, and there had been no vomiting. A large black, tarry stool was passed in the morning very much resembling meconium. The signs in the lungs were practically unchanged. Convulsions repeated in the evening. On the next day; the child had two very large stools, which consisted almost entirely of blood. This was sufficient to stain an area on a napkin, 10 x 20 inches. The blood came in clots partly mixed with fecal matter. Convulsions were repeated during the day, and death occurred at 10 P.M.

Autopsy.—Eighteen hours after death.

The body emaciated.

The Brain.—Showed evidences of tubercular meningitis, principally over the convexity, over the first frontal convolution, extending down into the great longitudinal fissure, and through this to the base of the brain. Scattered tubercles were found along the Sylvian fissures; but little lymph or pus.

The Lungs.—Were studded posteriorly with miliary tubercles; in the anterior portions with small yellow tubercular nodules, most of them about the size of a pea. A moderate amount of broncho-pneumonia anteriorly; none posteriorly.

Bronchial Glands.—Enlarged, cheesy, and softened.

Heart.—Normal.

Liver.—Very fatty; a few miliary tubercles.

Spleen.—Very much enlarged; studded with miliary tubercles, both on the surface and in the substance.

Stomach.—Distended with gas; nearly empty, the mucous membrane coated with a brown mucus. *Post-mortem* softening over the posterior portion, over an area of about three inches square.

Intestines.—Small and large intestine throughout contained brownish-red fluid blood, and in places, small clots. It was most abundant in the small intestine. In the large intestine there were two or three small circular ulcers near the ileo-cæcal valve. Throughout the small intestine were numerous circular ulcers, most abundant in the upper ileum and jejunum. These were fresher looking, larger, and apparently the source from which most of the blood came. Small tubercular nodules, about one line in diameter were seen at several points on the surface of the mucous membrane, apparently tubercular infiltration of the solitary lymph nodules. Mucous membrane nearly normal, excepting for the ulcerations.

Mesenteric Glands.—Slightly enlarged, but cheesy.

Kidneys.—Studded with small cheesy nodules.

Peritonæum.—Normal.

Remarks.—In spite of the great frequency with which tubercular ulceration of the bowel is found in autopsies upon cases of general tuberculosis, the infrequency with which these ulcers give rise to symptoms is very striking. Hæmorrhage is certainly very rarely met with. The foregoing cases are interesting, the first, because of the obscure nature of the symptoms during life, and the clear explanation of them by autopsy; the second, because of the combination of symptoms which was present.

In Case I., a diagnosis without an autopsy would have been impossible. The insidious nature of the symptoms of general tuberculosis is not in itself uncommon or striking, but the sudden appearance of so large and so frequently repeated hæmorrhages is very unusual. There seems to be no question but that the patient died from the loss of blood, and also that the single intestinal ulcer was the chief source of this hæmorrhage.

In the second case, the family history of tuberculosis affords a very good evidence to support the older theory of inherited tuberculosis, but considering the fact that the child lived for the first five months of its life in a small apartment with the father suffering from active pulmonary tuberculosis, the opportunity for infection seems great, and in such cases as this the explanation of infection is very much more rational than that of congenital disease. The presence in the last case of the physical signs in the

lungs, the enlargement of the spleen, and the cerebral symptoms left no doubt in our minds that the source of the hæmorrhage in this case was intestinal ulceration, probably of tubercular character. The infrequency of hæmorrhage in most cases of tubercular ulceration seems to be due to the slow progress of these ulcers, and their very chronic character. In Case I., no exciting cause in the way of a traumatism was discoverable.

AN HOUR IN THE OPERATING ROOM OF THE HOSPITAL FOR THE RUPTURED AND CRIP- PLED, NEW YORK CITY, JANUARY 28, 1892.

BY V. P. GIBNEY, M.D.,

Surgeon-in-Chief.

CASE VII.—*Talipes Calcaneus, Paralytic, Extreme; Shortening of Tendo-Achillis by Y-shaped Incision after Willets.*—Boy, æt. twelve years; has a marked degree of atrophy of the right calf, with attenuation of the gastrocnemius; bears his weight on his heel, with the front of foot raised from the floor and strongly arched across plantar region, making in addition to the calcaneus a sharp cavus. Has been an out-patient for a long time; worn the ordinary reverse catch-brace to prevent flexion of foot; brace much of the time under repair, and no relief thus far afforded. The paralysis dates from infancy.

Under ether a long Y-shaped incision from a point opposite the insertion of tendo-Achilles up to the point where the tendon ceases for the stem of Y, the V-shaped portion spreading out on either side two inches further. Incision made down to the tendon, which is freely exposed, V-shaped portion dissected up into the flap; director passed under the tendon, raising it freely from its bed, needle armed with heavy catgut passed through upper portion of tendon to prevent retraction after section; oblique section made through tendon, beginning down near its insertion, ending up near its beginning; ends caught with vulsellum forceps, upper portion dragged down, lower portion upward; this catgut used as suture and the portions united by quilt suture, then with silk; sides united with continuous suture on one side, the needle being passed through the tendon, binding the flap down close to the tendon. Little or no hæmorrhage; no vessels to tie. Protective over wound, iodoform sublimate gauze,

foot fully extended, knee slightly flexed, put up in plaster-of-Paris from toes to upper fourth of thigh, a bit of steel being placed over knee and down front of foot; the whole incorporated in plaster.

Dressing is to be left on about four weeks, when primary union is expected. Leg and foot to be kept in plaster two or three weeks longer, then patient to wear a shoe with tongue reinforced by steel, cork wedge in heel; the aim being to prevent any further flexion for at least a year.

CASE VIII.—*Old Deformity of Knee after Ostitis ; Partial Correction under Ether.*—Boy, æt. eight years; presents a high degree of flexion, with subluxation backwards and outwards, enlargement of bone; all active symptoms long since subsided; no motion can be detected at the joint; a superficial ulcer over the inner condyle, small sinus lower third of thigh, anteriorly; discharge, very little.

On account of the distortion outwards of the head of the tibia it was difficult to apply any apparatus for gradual correction, and under ether the limb is pulled into better shape; the lateral distortion about one-half corrected, flexion at least one-half; ulcer well scraped with Volkmann's spoon; necrotic skin cut away; sinus curetted, injected with peroxide of hydrogen, and tented with dermatol gauze; dermatol over ulcer and gauze; limb put up in solid plaster-of-Paris with steel bar on side.

No attempt was made at brisement force, the minimum amount of violence done; but the adhesions were loosened, and under a week's immobilization in plaster-of-Paris the sprain produced will perhaps undergo resolution; then the jointed Billroth splint, which consists of tin strips incorporated in plaster-of-Paris, with bars of steel extending to form a joint opposite the knee, heavy plaster in popliteal space, cut through when set, no plaster over ligamentum patella; then by a little manual force every day or two and the use of a cork wedge, at time of stretching in the back when section was made, it is thought that the deformity can be completely corrected with a minimum amount of pain, after which a Thomas knee-splint will be applied; patten or high shoe on sound foot, and a good prognosis is given—that is, a straight limb; small range of motion; cured joint.

CASE IX.—*Gluteal Abscess with One or Two Sinuses from Pott's Disease in Lumbar; Limb Deformed, Simulating Third Stage of Hip Disease.*—Boy, æt. eleven years.

Under ether, sinuses enlarged so that abscess cavity pretty well exposed; thoroughly curetted; necrotic tissue cut away; counter-openings made; drainage tube inserted; limb pulled down straight; plaster-of-Paris over the dressing from the knee to the free ribs.

The deformity of spine is very slight, and a good prognosis is given. That is, the boy ought to walk without deformity or lameness; the functions of hip-joint should be completely restored; the sinuses may remain, but will finally close.

CASE X.—*Relapsing Tubercular Ostitis of Knee; Large Abscess around Head of Tibia; Aspirated; Bichloride Compress.*—This boy, æt. about ten years, was in hospital last year; had deformity corrected; wore Thomas splint and plaster-of-Paris bandage for immobilization; was finally transferred to out-patient department with straight limb; small range of motion and every prospect for recovery. He neglected to attend regularly; brace got out of order; knee received several traumatisms; abscess formed.

Aspirated to-day. An ounce-and-a-half of rather thick pus withdrawn, followed by complete collapse of sac; no injection made; firm compress of wet bichloride gauze placed in sulcus, cotton batting over this; slight amount plaster-of-Paris; Thomas splint reapplied; boy sent home.

It is believed that this abscess will disappear. If it should fill again it can be aspirated and injected with iodoform and oil. The ultimate outlook is excellent.

CASE XI.—*Tubercular Ostitis (Caries) of Ankle in Young Child; Extensive Suppuration; Evidement through Free Incisions.*—This child, æt. about three years, has been in out-patient department for nearly a year, wearing protective appliances, but abscess formed two or three months ago. Two weeks ago was aspirated and injected, but this failed; one or two points broke down.

This morning, under ether, there is found a boggy mass over each malleolus, encroaching on the heel, one or two sinuses on each side of the leg, about the junction of the middle with lower third; fluctuating.

Under ether, through incisions at points of opening; astragalus found carious; thoroughly curetted with Volkman's spoon, through-and-through drain; abscess on leg opened and scraped; found that the tibia, lower end of the shaft, was very much eroded, and on scraping this out the

bone was completely scraped through, leaving only the fibula as protection ; one or two small vessels controlled by torsion and hot water, thoroughly cleansed, packed with strips of iodoformized gauze ; full dressing ; plaster-of-Paris, reinforced by steel ; foot at a right angle.

The prognosis here is not so good because of the loss of the lower end of the tibia, but it is believed that repair will take place, so that a serviceable ankle will result. It will be necessary to support the ankle with splints for several years yet to come.

MEASLES AND SCARLET FEVER IN THE SAME PATIENT—FIVE CASES.¹

BY W. P. NORTHROP, M.D.,

New York.

CASE I.—Private practice. A four-year-old girl complained for a few days of languor, headache and loss of appetite. Then appeared characteristic measles, eruption beginning behind the ears and upon the forehead ; there were also eye symptoms with coryza and cough ; coated tongue. Upon the soft palate was a mixed eruption, uniformly distributed, finely-punctate redness, with numerous discrete, bright red blotches, giving the very appearance later to be seen on the back.

Apart from the pharynx, the diagnosis was clearly straightforward measles.

Four days later, as the measles eruption was fading from the face and neck and the eyes becoming normal, the child seemed suddenly to become worse, feverish, dull, and listless. On the neck and chest was now a typical scarlet fever eruption ; as for the throat, the blotches had disappeared but the fine punctate redness was much brighter. This double disease presented the following stages of four days each :

The first.—Prodromal ; malaise, four days.

The second.—Measles eruption, four days.

The third.—Scarlatina eruption, four days.

On the sixth day both eruptions were plainly seen on the back, both perfectly characteristic. After desquamation the patient made a good recovery ; no albuminuria.

¹ See New Yorker Medicinische Monatsschrift, Bd. III., No. 11, November, 1891.

The child was thin and anæmic for several months in spite of a good summer in Saratoga, and returned to town with an obstinate naso-pharyngeal catarrh; she has since become perfectly well.

Points of Interest.—(1) The child has always been carefully tended and watched; never went to school nor with other children; lives in a large open block only a few doors from Central Park. At that particular time there was almost no contagious diseases among children in the city. How did she acquire this double infection?

(2) The mixed eruption was plainly seen on the velum at the first visit. It was no less distinct upon the back subsequently.

(3) Within a period of eight days this patient passed through the eruptive stages of two diseases, the two eruptions being present together on certain parts of the body.

CASE II.—New York Foundling Hospital. A four-year-old child sickened with typical measles symptoms—lachrymosis, coryza, cough, eruption, elevated temperature. Five days later eruption disappeared. On the afternoon of this day temperature mounted suddenly to 103° – 104° ; vomiting; following morning typical scarlatina eruption; recovery. This child was taken from a ward in which were measles and scarlet fever together.

Five days after the first measles eruption appeared scarlet fever eruption.

CASE III.—A two-and-a-half-year old child; all accompanying typical measles symptoms. Six days later as the measles eruption was disappearing the temperature suddenly mounted to 105° ; scarlet fever eruption; swelling of the neck; pharyngitis; prostration; sepsis; death.

From the first measles eruption to the first scarlet fever eruption, six days.

CASE IV.—A four-year-old child developed, after marked prodromal symptoms, typical measles. Three days later, with elevated temperature, scarlet fever appeared, also typical. In the ward from which this child was taken, measles had been prevalent.

Both diseases were typical, the second appearing three days after the first.

CASE V.—A four-year-old child. Scarlet fever with usual symptoms. Three days later measles; recovery.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

*Stated Meeting, March 10, 1892.*WILLIAM P. NORTHRUP, M. D.,
*Chairman.*F. M. CRANDALL, M.D.,
Secretary.

Cyanosis due to Narrowing of the Pulmonary Artery.—Dr. A. Jacobi presented a boy, perhaps two years and a half old, which was noticed by the mother to be blue when a few days old. The case was very unusual and interesting, for the reason that the cause of the cyanosis could be diagnosticated before autopsy. The heart was much enlarged, and was mostly to the right of the median line, showing that most of the hypertrophy was in the right ventricle. He had never seen the heart in cyanosis in the child extend so far to the right as in this instance. Nor had he ever seen such a case in which there was so loud and extensive a systolic murmur. It was not marked posteriorly, however, which excluded mitral incompetency. The murmur could be heard even in the abdominal aorta; it was most marked over the sternal region. Enlargement of the right ventricle meant obstruction stenosis of the pulmonary artery, but this was not complete else there would be no systolic murmur. The septum of the ventricle could not have remained open or been perforated in this case as was shown by the marked enlargement of the heart.

The Chairman remarked that the case seemed to be much like one reported by Keating of reptilian heart, in which there was a loud blowing murmur.

Two Cases of Vaginal Anus operated upon.—Dr. H. W. Berg read the histories of the cases. In both some fæces had passed, but with difficulty. In the first there was some sign of an anus in the normal place, but no perforation; in the second no sign. In the first the vaginal opening was smaller, admitting the point of the probe only, and was a little higher. In the second it was obscured from sight only by the labia. An operation was

performed at the age of four months in both cases by Dr. Lange, consisting in restoring the rectum to its proper place and size. An incision was made extending back nearly to the coccyx, the various tissues of the perinæum being carefully dissected until the rectum was reached, the arteries were tied as divided, the rectum separated from its connection with the vaginal wall, held by a cat-gut ligature in the hands of an assistant. In the first case the opening in the posterior vaginal wall was closed by catgut, in the second it was left to close without aid; the perinæum was then brought together by two deep sutures, and temporarily by a few superficial ones, both anterior and posterior, to the site of the anus from which the rectum was allowed to protrude; the anal end of the rectum was trimmed off, increasing the calibre of the anus. The patient did well. One was still living; the other had died after a year of measles.

Embolismal Apoplexy.—Dr. J. Lewis Smith reported a case of embolismal apoplexy in a boy aged twelve years, which had followed a severe attack of articular rheumatism. Last June, when twelve years of age, the boy had an attack of rheumatism, which was so severe as to confine him to bed for three weeks. The joints of the lower and afterward of the upper extremities were affected. In July, when going to the breakfast table, he experienced a severe pain in the right side of the head, about two inches and a half upward, and a little backward from the ear, and fell to the floor. He did not lose consciousness. From that time he had complete paralysis of the left side, the face also being affected. He remained abed until the seventh of September. After four or five days he was able to make a little movement of the left leg, and he had gone to regain power on the left side, until at present was able to walk, but with a limp. There was some contracture in the left hand. He did not lose power of speech. By way of treatment, faradism had seemed to do most good. Doubtless the embolus had been carried from one of the valves of the heart to, he supposed, a branch of the middle cerebral artery on the right side.

Yet at no time could any evidence of cardiac lesion be detected.

Such cases were rare in early life. The author had seen only one other case of embolism taking place in connection with rheumatism in a child, and in that instance the clot had lodged in the brachial artery. There was probably complete recovery ; the child disappeared from the clinic.

Discussion on Empyema.—Dr. Henry Koplik read the first paper, entitled, empyema. Is it ever primary ? Its relations to pneumonia and to pleurisy, with serous effusion.

Some of the points brought out in this paper were : 1, that empyema was usually secondary to pneumonia ; 2, that when pleurisy with effusion developed the pneumonia was apt to receive little further attention, or the correctness of the diagnosis of pneumonia the first days be even doubted ; 3, that pneumonia might be present and be entirely overlooked ; 4, that the pneumococcus might cause pleurisy as well as pneumonia ; 5, that one could not say an apparently simple serous effusion was really simple by microscopic examination alone ; 6, that aspiration was not likely, as had been supposed, to change a simple serous effusion into a purulent one ; 7, that what had seemed to be simply a serous effusion had already contained the elements calculated to convert it into a purulent effusion ; 8, that pleuritic effusion sometimes contained no pneumococci, but other forms, as staphylococci, or streptococci ; 9, that while he could not state positively a serous or purulent exudate in the pleural cavity containing the staphylococcus was ever primary, yet he had seen a case in which he had been unable to detect pneumonia ; there had been, however, tonsillitis ; 10, that primary empyema, while very rare, and he had seen no case himself, yet it did sometimes occur, as in a case of Dr. Scharlau's ; 11, that a pleurisy might be of the tubercular form, and one should not wait for weeks or months to make a positive diagnosis of the nature of the pleurisy, but should aspirate, examine the fluid microscopically, and make an exact diagnosis early.

Chief Points of Diagnosis: Differential between Empyema and Unresolved Pneumonia.—Dr. J. W. Brannan read a paper discussing this part of the subject. We had first to establish the existence of fluid in the chest, and then determine its character; chief reliance must be placed on the physical signs, although the clinical symptoms should not be neglected. Among the distinctive signs of fluid inspection showed more or less immobility and dilatation on the affected side, while the movements on the sound side were exaggerated; palpation showed loss of vocal fremitus over the fluid, perhaps increased vibration of the chest wall above the line of the fluid, and on the sound side; absolute dulness or flatness on percussion over the liquid; tympanitic or exaggerated resonance over the compressed lung; the sense of resistance on pressure was also increased over the fluid; on auscultation the respiratory sounds were found weakened or suppressed, vocal resonance affected similarly over the fluid; lastly, there was displacement of the thoracic and abdominal organs, especially of the heart and liver.

The question arose, might not some or all of these signs be caused by other conditions, such as consolidation of the lung, or intra-thoracic tumor? Some could, but not all. In pneumonia there was no bulging, dulness was not as absolute, nor was the heart ever displaced to the opposite side. In the rare cases of tumors one could rely on the absence of inflammatory process and other points in the subjective history of pleurisy.

Physical examination furnished with but two constant and invariable signs in pleurisy with effusion, namely, percussion dulness and displacement of the heart. Add to these puncture and we had three reliable diagnostic symptoms.

As to the nature of the fluid, the physical signs aside from examination of the fluid itself furnished no evidence. More was to be learned from the general symptoms and course of the disease. In acute empyema the symptoms were usually intense from the beginning and persistent. The fluid, instead of being absorbed the second or third

week, remained, fever continued; in chronic empyema the fever was usually of the hectic variety, characteristic of tuberculosis. Pleurisy following acute lobar pneumonia was usually purulent; suppurative pleurisy, also, often complicated broncho-pneumonia, especially in feeble children; traumatic pleurisy was apt to be purulent, even though there were no contusion of the chest-wall; and pleurisy occurring in the course of infectious diseases was apt to be purulent; encysted pleurisies were usually purulent. The aspirator needle alone would determine positively the character of the effusion, and this should always be resorted to when the fluid did not speedily disappear. Encysted empyema was sometimes difficult to differentiate from pneumonia, but then it was rare in childhood.

How, When, and Where to Operate.—Dr. John H. Ripley read a brief paper on this subject. He said the object of all surgical treatment of uncomplicated pleurisy at the outset was to evacuate the cavity, and let it close and heal. Two methods had been used: 1, making a simple incision into the pleural cavity through an intercostal space, and inserting a drainage-tube; 2, the exsection of a small portion of one or more ribs, with or without the periosteal covering, and inserting a drainage-tube. The second procedure was said to facilitate drainage, and also to favor retraction of the chest-wall on the affected side. He had himself done the simple operation; it had answered. The child was chloroformed, put on a table, nearly on the back, the arm on the affected side partially extended, the parts cleansed, an incision made about two inches in length, in an intercostal space, extending from the superficial tissues to the costal pleura, this membrane was punctured with a narrow, sharp-pointed knife; as pus flowed a grooved director was inserted by the side of the knife, the knife withdrawn, a blunt-pointed bistoury was inserted, the wound enlarged to an inch or more, with dressing forceps, three or four inches of fenestrated rubber tubing was inserted, and secured by a safety-pin passed through its walls and fastened to the dressing.

He placed a large pad of marine oakum over the wound, and put on a roller bandage. The dressing was changed daily. As the cavity diminished the tube was gradually withdrawn and cut shorter, and finally was removed altogether. This should not be done until the entire sac was obliterated. The cavity was not washed out neither at the time of the operation nor subsequently, unless the pus became very fetid and the temperature rose. In that event use simply warm water.

Where to Operate.—In case the fluid occupied the usual site, it was best to make the incision just anterior to the inferior angle of the scapula in the seventh or eighth intercostal space, provided, of course, pus had been first obtained at this point by aspiration. If the fluid were circumscribed, the most favorable point for drainage should be chosen. It was occasionally advisable to make two openings.

When to Operate.—An operation was indicated as soon as the diagnosis was made. To this rule there must be few exceptions. Ordinarily two or three days would not impair the result.

The Causes of Expansion of the Lung in Cases of Empyema Treated by Free Drainage.—Dr. J. West Roosevelt then read a paper. Although it is well known that complete expansion of the lung takes place in some cases of empyema treated by free drainage, and that a more or less complete expansion may be looked for in a majority of uncomplicated cases when the operation has not been too long delayed, there is evidently much misunderstanding in the profession as to the way in which expansion is brought about. As such misunderstanding leads to much bad practice, it is well to call attention to the facts, although to do so necessitates a repetition of much that is old.

Expansion of the lung is prevented if enough granulation tissue accumulates upon its surface while it remains compressed.

It is obstructed by physical changes in the elastic tissue of the organ itself, if compression has lasted for a long time and has been extreme.

It is prevented if a perforation exists which does not close, and which makes a fairly free communication between the bronchi and pleural cavity.

Expansion is produced by the air forced into the collapsed lung from the sound one during *expiration*, provided the opening in the pleura is smaller than the area of half the glottis, as was shown by A. H. Smith. Smith's first paper appeared in the *Medical and Surgical History of the War of the Rebellion*, (Surg., vol. 1, p. 631). He followed the same train of experiment, and published in the *New York Medical Record*, November 1, 1869, some valuable observations. His work has been shown correct in all essential points.

The contraction of the granulation tissue upon the surface of the pleuræ, aids after a certain amount of contact has occurred in expansion. This is analogous to the adhesion of adjacent fingers after a burn.

Collapse of the chest-wall is not to be desired after empyema. Ribs may be removed in order to insure free drainage, but should not be exsected for any other purpose until it has been shown that the lung will not expand.

Operate early.

Dr. Barnim Scharlau said he had seen one case of primary empyema, he having seen the child from the first day of sickness, and by the third day the right pleural cavity was full of pus.

Dr. August Caillé had also seen one case of primary empyema. He had seen the child when entirely well, then when it first became ill; pus was found in the pleural cavity on both sides; it died within four days; the autopsy also showed double empyema, while the lungs were normal. There had been no tonsillitis or other disease. He had seen two cases of primary empyema in the adult.

Dr. L. Emmett Holt had never seen primary empyema. Even in cases of empyema secondary to scarlet fever he believed there was usually some pneumonia. At any rate, he had always found some pneumonia at autopsy.

He could not recall a case in which there was first distinctly serous effusion which afterward became pus without there being also pneumonia. Yet he did not deny but what empyema might develop without pneumonia.

Dr. M. Putnam Jacobi had seen a case of empyema in which the absence of pneumonia was proven by autopsy.

Dr. Ewald, of London, who had been invited to a seat on the platform, remarked that primary empyema was not impossible, yet the rule was for lung trouble to precede the acute formation of pus in the chest.

The discussion on Dr. Brannan's paper being in order, Dr. M. Putnam Jacobi again called attention to the old error, which the author had also fallen into, of supposing that the lung was compressed by pleuritic effusion. It had been shown by Dr. Garland, of Boston, and others, that a body like the lung, containing elastic tissue and air, would retract but not be compressed when surrounded by fluid.

Dr. John H. Ripley said, regarding compression of the lung, that he thought if there were effusion in considerable amount the air vesicles would be compressed and there would be bronchial breathing above the fluid. It did not require much fluid ordinarily to give rise to bronchial breathing at the apex of the lung. With regard to flatness on percussion, it was not always possible to bring out flatness above when there was considerable fluid in the chest of a child. He thought the most reliable diagnostic point was displacement of the heart. But even then it was not always possible to tell exactly where the apex beat was. This difficult was greater in the child than in the adult. Men of large experience frequently mistook pleurisy for pneumonia.

Dr. Roosevelt emphasized the statement made by Dr. M. Putnam Jacobi, that it was a mistake to speak of compression of the lung by the fluid; the lung simply retracted. As to bronchial breathing in pleuritic effusion, according to his observation on adults, there was no bronchial breathing when the fluid was small in amount. Regarding displacement of the heart, he thought it was

less due to pushing by the fluid than to pulling by the lung. The only exact test of the presence of fluid was by using the aspirator needle.

Dr. Andrew H. Smith said that egophony just above the level of the fluid, when it could be obtained, was very significant.

Dr. Northrup thought egophony would not be likely to be prominent in children.

Dr. Ripley said, regarding the use of the aspirator needle, it often failed to bring fluid when it really existed. In one instance he punctured eleven times and got no fluid; the twelfth time he obtained pus, and withdrew 120 ounces.

Dr. Holt remarked that there was significance in the disappearance of friction sounds and râles where they had been present a day or two before, while at the same time bronchial breathing developed above the line of supposed fluid.

Dr. Ewald thought the *symptoms* should not be overlooked, especially in connection with the *physical signs* of empyema. An oscillating temperature associated with persistent and dry cough, the latter not due to bronchitis, or phthisis, was significant. Add pain and the evidence became stronger. Egophony was also a valuable sign when associated with others. Further, sounds becoming silenced, as mentioned by Dr. Holt, pointed to effusion. One should not place too much reliance upon a single sign, and overlook corroborative ones.

Dr. Caillé said vocal fremitus did not exclude effusion in children. He had seen many cases in which vocal fremitus was present while there was at the same time fluid beneath. The only positive sign was to withdraw fluid with the needle.

Dr. Rachel thought the point mentioned by Dr. Caillé should be emphasized. In children a portion of the lung seemed to hang down in the fluid, and vocal fremitus might be present over the fluid. We had to turn to aspiration for positive diagnosis.

Discussion on the question relating to expansion of the lung was taken up, and Dr. A. H. Smith spoke of his

experiments which had been referred to in Dr. Roosevelt's paper, and said that advantage might be taken by patients, old enough to apply it, of the fact that air could be transferred from the sound lung into the one on the pleuritic side, so as to cause expansion on that side. Let the patient take an inspiration, and then, with the mouth and nose closed, make expiratory effort, and the air would pass from the sound lung into the one which had been more or less collapsed, distending it.

Dr. Dawbarn said, in connection with the danger of washing out the pleural cavity, that he had done this in one case of an adult, the pus being very offensive, a one per cent. warm solution of carbolic acid was employed, and the man died rather suddenly. He had read of the possible danger before resorting to irrigation.

Dr. Ripley had seen no evil result in the cases which arose, now and then, calling for irrigation.

Dr. Caillé said irrigation was now commonly looked upon as bad treatment. It broke up obliterating adhesions.

Dr. Berg advocated taking out a section of a rib.

Dr. Joseph E. Winters was requested to speak of the prospects of undiagnosed cases of empyema. He said they terminated in exhaustion or tuberculosis. Speaking of diagnosis, he said a very significant symptom was the peculiar feel to the finger on pressing over the chest-wall where fluid was beneath; it was much like pressing on a board. The breathing was largely diaphragmatic in pleurisy. Press against the diaphragm and physical signs could be brought out which could not be elicited in any other way. It had been said that traumatic cases were almost always purulent, yet, personally, he had seen none in which the effusion was purulent in traumatic cases. Further, he believed it was uncommon to have serous pleurisy follow infectious diseases. The question had been asked whether serous effusion became purulent. He had seen a great many cases of serous pleurisy, but none which had terminated in empyema. His impression was that almost all empyemas were associated with pneumonia.

Clinical Lecture.

1. SUBCUTANEOUS OSTEOTOMY OF FEMUR—
2. INCIPIENT HIP-JOINT DISEASE.¹

BY H. AUGUSTUS WILSON, M.D.,

Clinical Lecturer on Orthopædic Surgery.

Gentlemen.—I bring before you to-day, the case which Prof. Brinton showed to you a week ago and kindly referred to me for operation. The patient is a boy nine years of age, with a deformity of the femur, following hip-joint disease. As you will remember, the left hip became diseased, and, owing to the absence of proper precautions, was firmly ankylosed at right angles to the spinal column. This case is illustrative of the reasons for classing hip-joint disease as an orthopædic affection in that it shows a common form of deformity resulting from a joint disease. It will recall to your mind that prevention of deformity is an important feature of orthopædic surgery. I have examined carefully to see if the head of the bone is firmly fixed, and find that it is apparently united to the acetabulum by ossific deposit. After the operation I will tell you why I do not break up these adhesions to reëstablish the functions of the joint, but perform subcutaneous osteotomy by the method known as Gant's operation, or subtrochanteric section. The steps of the operation are incision, one inch in length, through the skin and subjacent tissues to the femur, through which the osteotome—practically a chisel—is inserted until the bone is reached, when, by means of a hammer, the latter is divided. The subsequent treatment is by rest and fixation of the limb in the proper position, so as to overcome the deformity which exists. This operation has advantages over the open operation in that

¹Delivered at the Jefferson Medical College Hospital.

the patient is exposed to fewer risks of inflammation. You know how much more severe a traumatic compound fracture is than a simple fracture. Practically we are going to produce a compound fracture to-day, but by means of antiseptic measures we shall avoid the danger of infection. The ordinary dangers of the operation are, first, injury to the sciatic nerve by cutting or compression, or to the femoral artery and vein by compression, or by the slipping of the osteotome, any of which occurring would render it necessary to cut down and make efforts to repair the injury. But by carefully watching the progress of the osteotome these may all be avoided.

The patient has been prepared by having the parts scrubbed and cleansed, attention has been directed to his general health, and he has been placed in the best condition for the operation. There will be shortening following this operation, due to the deflecting of the line of the shaft of the femur, but this will be compensated for by the use of a patten or high-soled shoe. It is often recommended that the incision through the skin, which is to be made in the line of the femur, be made by the osteotome cutting through the skin and other tissue by means of sharp blows with the hammer. I prefer a clean incision by the knife, however, after which the osteotome is inserted and then turned, so as to be transverse to the femur. This is what is called "button-holing" the incision. The placing of the anvil is of very great importance, for serious injury and great annoyance often result from its improper adjustment. The anvil in use is a block of wood, thoroughly covered by antiseptic cloths, and is so placed that the parts surrounding the point to be fractured cannot be injured by the force employed. The patient lies upon the left side, with the left leg extended, so that the right shall be in an accessible position. The point of incision will be one-and-a-half inches below the great trochanter; and the anvil is placed directly below that point, an extremely difficult thing to do in this case, owing to the position of the ankylosed leg, although I think I shall be able to manage it. The osteotome is

now inserted through the incision that I have made, until I feel the femur, on which I firmly press, while turning it so that the blade shall be transverse to the femur, and then proceed to cut through the bone by repeated blows with the hammer. I can feel the cancellous structure very clearly as the osteotome passes through the compact structure, and in this way it acts like a probe in feeling for the portions to be divided. The osteotome can then be partially withdrawn and the undivided structures cut until the bone is almost completely severed. Occasionally the osteotome becomes locked or jammed by the force applied, and then it is recommended to replace it with a smaller one, but I believe that the entire operation can be usually performed without change, if proper attention is paid to the position of the anvil. It is far preferable to proceed by slow, easy stages than to attempt to cut rapidly through the bone, for it not infrequently happens in high osteotomy that the callus which has united the head of the bone has also extended below the former joint and united firmly with some of the lower structures, making the fracture still more difficult to accomplish. Now I have partially cut through and with force broken the femur, and you can see the change in the position of the limb. The upper end is fixed firmly in position, while the rest of the leg comes down in a straight line. After washing the wound with an antiseptic solution and sealing it with collodion, comes the most important part of the procedure, that is, the maintenance of the proper position. I am handling this limb with the greatest care, for we must bear in mind that we are near to the tubercular disease which caused the deformity. And it is not impossible to relight the inflammation and thereby induce a serious extension of tubercular infection. The wire breeches in which the boy is placed is a form of bed in which he can be held in a rigid position while traction is applied to maintain fixation and coaptation, and at the same time evacuations from the bowels and bladder can take place without disturbing him.

I will now show you in what the operation has consisted, and explain the reason for selecting the method I have here adopted. The head and neck of the femur have in this case of tubercular disease been eroded and destroyed, so that we can practically drop it out of the consideration of remedial measures. The various operations recommended for the relief of deformities similar to this one are osteotomy through the neck; secondly, a section directly through the trochanters, and thirdly, the one I have just performed—below the trochanters. The first is termed the supra-trochanteric section, the one through the trochanters the inter-trochanteric, and the one just beyond the trochanters the infra-trochanteric osteotomy, or the operation of Gant. The reasons the latter is preferred are, that attached to the lesser trochanter are the psoas and iliacus muscles, whose action is to draw up the leg. If we make a section above this point of attachment, we have these muscles acting upon the lower fragment and interfering with coaptation, while if we go below the trochanteric line we do away with this disturbing factor. Another very important point is that very often the tubercular disease extends to a large portion of the ilium and upper portion of the femur. If, now, we proceed with the operation through or very near to this tubercular deposit, we will be apt to set up a new inflammation and have a worse condition than before. If we go below the trochanters we avoid this tissue and have healthy bone to cut through. I will not speak of osteotomy by V section, because it is not applicable to this case, and is only performed when the leg is thrown over the other. As far as I am able to find, Philadelphia was the first place in which osteotomy of the femur by open incision was performed, Dr. John Rhea Barton being the operator. Open incision with saws, and a small incision or subcutaneous section with the osteotome, are the methods employed. In the use of the saw the dust is difficult of removal, and the open incision is not desirable because it unnecessarily exposes the patient to risks that are avoided by the subcutaneous method.

An osteotome differs essentially from a chisel. The carpenter's chisel has a short, beveled edge upon one side only; the iron worker's, or cold chisel, has short, beveled edges on both sides, while the osteotome is a combination of both. It is made of double bevels extending the entire length of the blade, and is therefore wedge-shaped. and is not like a table-knife, the same thickness throughout, but broad at the top and tapering to a fine edge. It will penetrate to a considerable distance in the bone without jamming, if the proper mechanical observations are made of the position of the affected leg. Now there is an interesting point I want to show you—the application of common sense in the avoidance of impaction of the osteotome. Let this stick, which I have arranged with supplemental pieces to take the places of the condyles at one end and the head of the bone at the other, represent the femur. If I press upon the centre of this stick while it is upon the table it will bend and be sure to cause pressure upon the osteotome at the point of division, jamming it and preventing its progress. There is also a perceptible spring, limiting the effectiveness of the blows upon the chisel, but most objectionable of all, the full force of the hammer is communicated to the ends, thereby producing traumatism. I therefore use the anvil to give support directly at the point of incision and prevent the pressure upon the site of the tubercular ostitis of the hip. The force is applied directly over the anvil, and as a result, impaction of the chisel and injury to the head of the bone are avoided, and far less force is required to drive the osteotome.

Incipient Hip-Joint Disease.—This little girl has recently come to the department with the statement that two weeks ago she was perfectly well and strong. She then complained of great pain in the outer side of the knee-joint of the right side. On examination the leg was found to be adducted and flexed; any attempt at motion of the hip caused great agony, while the knee-joint could be freely moved without pain. The child was immediately placed in bed and slight

extension of one pound put on the limb. This is the incipient stage of coxalgia, and I regret that I am unable to demonstrate before you the methods of arriving at a diagnosis upon the patient, but her pain is so great that manipulation is unwarranted. The diagnosis of the condition was made with great care by observing the movements of the sound limb first and then by comparison with those of the diseased limb. I could abduct, flex and rotate the left limb with great ease without disturbing the pelvis. The moment I attempted to extend the affected leg I produced an arching of the lumbar and dorsal vertebræ, showing I was tilting up the pelvis and lower portion of the spinal column. The genitalia followed the motion of the leg as I abducted the latter. I found that in attempting to raise or rotate the leg, that the pelvis followed every movement, clearly indicating that there was firm fixation. How was it possible in the course of two weeks to have produced such fixation? Upon making a careful examination we found that the gluteal and psoas muscles were in a state of firm contraction, thus producing the fixation described. The fixation in the early stage of the disease is therefore not permanent, one due to inflammatory action; but is muscular action involuntarily produced to hold the head of the bone in a condition of rigid fixation in the acetabular cavity.

The thought may occur to you to administer an anæsthetic in such a case in order to thoroughly relax the rigidly contracted muscles, so that the presence of joint adhesions could the better be determined. Let me urge you not to have recourse to such a method and to explain the reasons. Under ether there is no indicator to show the amount of traumatism produced in the efforts to determine the presence of fixation, and as a result, free motions are apt to be made by the manipulator, and the bone already softened by tubercular deposit is broken and crushed, and any tendency towards absorption and resolution is changed into a destructive action.

At night, when the muscles relax naturally, the head leaves its fixed position, and any movement of the child

produces intense pain and a resultant muscular spasm, which jams the head upward into the cavity, and the child awakens with a cry. The way we secure rest is by means of extension by adhesive plaster to which weights are attached. The patient at first resists the application of the weight because the muscles are in a state of excitability. Therefore it is necessary to commence with a slight weight; often one-quarter of a pound is more than the child can bear. Gradually, however, the muscles will relax until we can add four or five, or, in the case of an adult, eight or ten pounds. We must learn, therefore, to begin with a little and gradually add as we are able. For two days this patient has been left in the position in which she came in, with the leg flexed and abducted, but with a weight attached. Now for the first time the limb is drawn into its proper position, and the application of an additional pound will be borne.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Gulland, G. L.: On the Function of the Tonsils. (*Edinburgh Med. Jour.*, November, 1891.) Conclusions.

1. The tonsils—faucial, lingual and pharyngeal—are organs arranged to further the reproduction of leucocytes.

2. This reproduction takes place, mainly in the germ-centres, by mitotic division of preëxisting leucocytes.

3. The young leucocytes so formed are partly carried off to the general circulation by lymphatic vessels originating in the tonsil, partly remain in the tonsil as "stationary" cells, and partly wander out into the crypts by perforating the epithelium.

4. They thence pass to the surface of the tonsils, and take up foreign bodies, especially micro-organisms, which would otherwise pass the tonsils.

5. In the human subject the lingual and faucial tonsils, and the slight diffuse leucocyte infiltration of the under surface of the velum palati, form a protective ring or zone between the mouth and the rest of the *alimentary* tract; while the pharyngeal and tubal tonsils and the diffuse

leucocyte infiltration of the upper surface of the palate form a protective ring round the upper part of the *respiratory tract*.

6. There is no reason to regard the tonsils as having any absorbent function in normal circumstances; the reproduction of leucocytes is sufficiently active, as a rule, to keep up a continuous outward stream of these cells, and to prevent the entry of foreign substances into the tonsils.

7. Under certain circumstances, for instance in general debility, the reproduction of leucocytes may be interfered with, or the outward stream of these cells from the tonsils may be arrested. This arrest or other circumstances interfering with the activity of the leucocytes may allow pathogenic organisms from the mouth, etc., to enter the tonsil by the spaces in the epithelium, and these microbes may give rise to a local or general infective process.

Dubousquet-Laborderie: Contagiousness of Acute Tonsillitis. (*Jour. de Méd. d. Paris*, December, 1891.)

Cases which show the contagiousness of tonsillitis are numerous. It is observed in families, hospitals, schools—more rarely a veritable epidemic is observed. We do not deny the contagiousness of measles, scarlatina, mumps—though we are equally in ignorance of the agent of the contagion.

The incubation varies from two to six days. The conditions favorable for the production of the disease are: an epidemic, cold, sudden changes of temperature, crowding; lack of cleanliness. Internal conditions are the age of the subject, scrofula. There is an incontestable predisposition; a first attack predisposes to others. The disease appears to lie latent as in erysipelas where there are repeated attacks. The germs of the disease remain inactive in the crypts of the tonsil until such a time as the internal and external conditions give them a vicious activity. The infectious nature of the disease and its contagiousness being admitted, certain therapeutic and prophylactic measures should not be neglected. Antiseptics, internally and externally, at the onset, an emetic or a cathartic, sulphate of quinine, salicylate of soda or salol, gargles of a solution of boric acid, four per cent., or carbolic acid, one per cent. A solution of chloral, which is antiseptic and calmative at the same time, may be used if the pain is considerable and swallowing difficult.

II.—MEDICINE.

Solles: Prophylactic Treatment of Hereditary Tuberculosis. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

The author believed that hereditary tuberculosis existed in a sporular form, the tubercular sporule being the progenitor of tuberculosis in the majority of cases. The proof of the existence of the tubercular sporule is that upon a section of a miliary granulation no bacilli are found, but if a rabbit is inoculated with this granulation, the animal will die from phthisis, and numerous bacilli may be found in its body. In most of the scrofulous lesions, which are very suggestive of tuberculosis, no bacilli are found. These facts seem to demonstrate the existence of a hereditary tuberculosis, which is not bacillar, but sporular. Phthisical and scrofulous subjects eliminate specific spores by their excretory organs. The author has demonstrated this to his own satisfaction by inducing tuberculosis in guinea pigs, which he had inoculated with the fæces, urine and semen of tuberculous and phthisical subjects. These experiments enable one to formulate principles for the prophylactic treatment of hereditary tuberculosis. It would consist in the expulsion of the spores by increasing the functional activity of the excretory organs, the skin, kidneys, and intestine, thus preventing the development of the disease. It would further consist in securing the resolution of the sporule accumulations by the use of the iodide of potash, salt-water baths, and revulsives.

Hutinel and Deschamps: Tuberculosis of the Testicle in Children. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

Tuberculosis of the testicle is common in children, especially during the first five years of life. It may be the first localization of hereditary disease, and is favored by the occurrence of traumatism. It frequently coincides with peritoneal tuberculosis. It is more frequently located on the left side. Clinically, it is quite similar to the same disease in adults. It frequently occurs in the acute form, with rapid development of softening. Acute miliary tubercle of the testicle is a rare condition. The lesion is most frequently seen in the course of sub-acute or chronic pulmonary tuberculosis, or with osseous tuberculosis. It progresses insidiously, and may be discovered by chance.

There may be softening with an opening externally, or there may be retraction and complete disappearance, without a cutaneous lesion; an inguinal adenopathy is always associated with the lesion of the testicle, but is independent of it.

Anatomically, the lesion differs from that which occurs in adults in that the testicle may be profoundly affected while the epididymis remains unharmed, the skin also remains intact for a long time, fistula being of rare occurrence. In many cases the tuberculous nodule is not very large, but is surrounded by a zone of fibroid, semi-transparent matter which suggests sarcoma, and has been described in part by Cruveilhier, under the name of fibroid transformation of the testicle. In some cases the development of fibroid material is so extensive that only a few giant cells containing bacilli can be seen here and there. The slight development of the spermatic canals in children shows that the tubercle must have originated by way of the blood or lymphatic vessels.

The prognosis is grave, on account of the serious troubles which coexist. The diagnosis is easy; syphilis usually involves both testicles at the same time. There is no inflammatory reaction; the gland is hard, and the epididymis intact in syphilis. The results of the operation for castration are bad; ignipuncture is much more efficacious, but should only be employed if there is tendency to softening.

Northrup: Tuberculosis in Children; Primary Infection in Bronchial Lymph-nodes. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

In the great majority of cases of tuberculosis in children the primary focus is to be found in the bronchial glands. The progress of the infection may be marked by the duration of the lesions. Of 125 autopsies in which tuberculosis was found, the lesions were so extensive in thirty-four that the determination of the primary focus was impossible. In twenty cases of general tuberculosis the bronchial glands were caseous or calcified, and the tubercles in the other organs were probably the result of a discharge of bacilli from these glands. In forty-two other cases only the bronchial glands were caseous, and in the lungs and abdominal organs there was miliary tuberculosis. In nine cases the tuberculosis was limited to the lungs and the bronchial glands; the tubercles in the lungs were discrete and transparent, while those in the bronchial glands were much degenerated. In thirteen cases which terminated in measles, diphtheria, or scarlatina, the tuberculosis was limited to the bronchial glands. Loomis' investigations have also shown the frequency of tubercular lesions in the bronchial glands. The inoculation of animals with bronchial glands removed from individuals dying of acute

non-tubercular disease, no tubercles being present in their organs, was followed by acute miliary tuberculosis in eight cases out of thirty. Arnold, Dobroklonski, Wyssokovitch, and others have shown that bacilli may traverse epithelial membranes without leaving any trace of their passage.

Lubarsch: Intra-uterine Transmission to the Fœtus of Pathogenic Bacteria. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891.)

The author's investigations were made upon rabbits, guinea pigs, and rats, thirty-nine in all, with 106 fœtuses. Sub-cutaneous, intra-venous, and intra-peritoneal methods of inoculation were practiced with cultures of anthrax, the pneumo-coccus of Fränkel, and the *bacillus enteritis* of Gärtner. The following results were observed: Of seven rabbits, which were allowed to die from anthrax, transmission to the fœtus was observed in two cases by means of the microscope and cultures, in one case by means of the microscope alone, and in one case by cultures alone. Of twenty-one guinea pigs, positive results were demonstrated in six cases with the microscope and cultures, in two by cultures alone, and in two by the microscope alone.

Of three rabbits, which were inoculated with the pneumo-coccus, positive results were determined in two with the microscope and cultures. One guinea pig was inoculated with the *bacillus enteritis*, the result being negative. How can we explain the inconsistent transmission of the micro-organism to the fœtus?

The author does not concede that pathological modifications of the placenta, from hæmorrhage, etc., play the preponderating rôle, which has been attributed to them by Wolff, Malvoz, Virchow, and Birco-Hirschfeld.

He believes, rather, as the result of his experiments, that the bacilli can traverse intact epithelium, and that this does occur in the transmission of the bacilli to the fœtus. If this transmission does not occur very frequently, it is due to the fact that the micro-organisms, and especially the bacteria of anthrax vegetate for only a very short time in the placenta, and that proliferation in the animal organism varies with the species, and is often very limited.

Comby: Curability of Syphilitic Pseudo-Paralysis in the Newborn. (*Rev. Mens. des Mal. de l'Enf.*, October, 1891.)

In newborn infants who have inherited syphilis one sometimes sees functional impotence of one limb, of the

two upper limbs, of the four limbs. This paralysis generally coincides with a lesion of the bones which may vary between a mild hyperostosis and spontaneous fracture, or laying bare an epiphysis. Parrot was the first to call attention to this peculiarity in hereditary syphilis, hence it was called Parrot's disease, though not essentially a disease. He believed that it was almost absolutely incurable, but such fatality has been disproved in several cases. Dreyfous showed in 1885, that favorable cases were not especially rare, and collected seven cases in which a cure had resulted. Twelve other cases have been reported by different authors, and it is probable that not a small number of other cures has not been recorded. Fournier, Cadet de Gassicourt, and Sevestre have expressed themselves in very decided terms with regard to its curability. The author then adds to the list of reported cases of this disease, five cases which had come under his observation, in four of which there had been complete cure. Three of them were cured in fifteen days by inunctions of mercury, and the fourth in nine days. In three of the cases there were bone lesions.

It would follow from the evidence which has been given that syphilitic pseudo-paralysis in newborn infants is perfectly curable. The prognosis depends upon conditions different from the particular localization which constitutes the so-called Parrot's disease. It depends upon the surroundings of the child, being favorable in families where there is ease and comfort, and unfavorable in hospitals where newborn infants are usually cachectic and dependent upon artificial nutrition. The prognosis depends upon the general condition of the subject, the existence or absence of visceral lesions, the promptitude or lack of promptitude with which specific treatment is administered. It depends also upon the sagacity of the physician in recognizing that it is syphilis and not traumatic fracture, spontaneous osteomyelitis, or spinal or cerebral paralysis which he has to deal with. In most cases the paralyzed child, in addition to the lesions of his limbs shows the cutaneous and mucous stigmata of hereditary syphilis. He also has the waxy countenance, the ragged and ulcerated lips, the obstructed nose, the thighs, the genital organs, and the anus, with their papulo-erosive syphilides. In well-marked cases syphilis is written upon the countenance of the child, and if proper treatment is begun at once the child's life may be saved. But the diagnosis is not always so easy, for some infants with pseudo-paralysis

seem to be free from syphilis, their general condition is satisfactory, and there are no syphilitic marks upon the skin. Coryza is almost always present in such cases, and should remind one of the possibility of syphilis. But if all such signs are wanting, syphilis may be diagnosticated from the pseudo-paralysis alone, the child being a few weeks to a few months old without history of a fall, or other violence, but with absolute paralysis of one or both the upper limbs. This paralysis was not present at birth, came spontaneously, without fever or convulsions, is not accompanied by trophic troubles, is peripheral, a monoplegia, or diplegia, without participation of the muscles of the face. The obstetrical paralysis in the newborn which sometimes affects the same parts as syphilitic paralysis is seen from birth or a few days afterward; its origin, its evolution, and its termination are different from syphilitic pseudo-paralysis. Examination of the long bones of the paralyzed limb or limbs will be sufficient in almost all cases of syphilis to determine a lesion which coincides with the paralysis. There may be a hyperostosis of the upper or lower extremity of the humerus, or crepitation at the epiphysis, or there may be swelling or hyperostosis of the upper extremity of the radius or ulna. Interrogation of the parents of the child will enable one to exclude all traumatism of the bones. If osteomyelitis were present it would be announced by fever, restlessness, pain, inflammatory swelling, sub-periosteal abscess, etc. The treatment should be prompt and energetic; if the child is weak, delicate and athreptic, not much can be done in the way of internal medication. No better treatment can be suggested than daily inunction with Neapolitan ointment, which is much better tolerated by newborn infants than by adults. The ointment may be rubbed gently upon the skin of the belly with a soft piece of linen, a new portion of skin being thus treated each day to prevent erythema or eczema. The ointment may also be rubbed upon the skin of the thorax, the thighs, etc. If there are ulcerated lesions mercurial baths may be added to the inunctions, a gramme of sublimate being dissolved in a few grammes of alcohol, and twenty or thirty liters of water added. If inunctions are not practicable Van Swieten's solution may be given in milk in doses of one to three grammes according to the age of the child. This treatment must be continued long after the pseudo-paralysis is cured; after a few weeks or months the inunctions may be discontinued and Gibert's syrup or Van

Swieten's solution be given with iodide of potassium. This treatment must be rigorously continued for months, or even years, as is appropriate in cases of syphilis without reference to pseudo-paralysis.

Charpentier: Two Cases of Scurvy in Children.
(*The Lancet*, October 3, 1891.)

CASE I.—This patient was brought on account of pain and tenderness when moved. The patient was a boy, nine months old.

From soon after birth he was fed on diluted cow's milk. Gastric catarrh developing, condensed milk was used until three months of age, when a "patent" starchy food was used. On examination the child was fat, but flabby and pale, and in pain when moved. The thighs were tender to the touch. The fontanels were quite open, and the ends of the bones were slightly enlarged. The abdomen was swollen. There were no teeth. He was restless at night, and sweated profusely. The bowels acted freely, and the motions were pasty and very offensive.

Rickets was diagnosed, and the child was ordered a malted food with diluted cow's milk, gradually increasing strength. Beef tea was given once daily, and a mixture of iodide of potash and lacto-phosphate of lime.

A fortnight later he was brought again, showing a small bruise on the back, and later he developed ecchymoses on the eyelids, while the left thigh was swollen, hard, and brawny, and very tender to the touch. The mouth was sore, and the gums tender and red. A meal of potato pulp was ordered twice a day, as well as raw meat juice and the milk. The improvement was most marked; a fortnight later he could take iron and cod-liver oil with advantage to health.

The second case was one of sporadic cretinism, which also developed scurvy. A girl, sixteen years old, with the typical appearance of a cretin. The mother states that the child was dull at birth, and when seven weeks old, had convulsions for a week; since then she had never been like other children.

The child cannot stand or speak, takes no interest in life, and can only swallow liquids; she has a goitre the size of an orange. She has been fed on fresh milk with beef tea and minced meat occasionally.

On examination the gums were swollen, deep reddish-purple, and prone to bleed.

There was a small bruise on the left fore-arm, one on the left thigh, and another on the right leg, which could not be accounted for.

The patient was ordered lime juice to drink and potato pulp three times a day. In a week's time all the symptoms of scurvy had disappeared. Remarks: The occurrence of these two cases illustrates the necessity of a better knowledge of dietetics in medical practice.

Another point is the common use of condensed milk. It is unquestionably very bad for infants.

It has been said that fresh cow's milk has anti-scorbutic properties. One of the cases had always had new milk, and never condensed milk, while the other developed scurvy while he was taking new milk when under treatment for rickets. We must admit that the scorbutic condition depends more particularly on the lack of other appropriate food. The author thinks that rickets and scurvy are more benefited by raw meat juice and potato pulp, than by the freshness of the milk.

Jamieson: A Method of Accelerating Desquamation in Scarlet Fever. (*The Lancet*, September 12, 1891.)

Whatever influence the early symptoms may exert in communicating scarlet fever, it is universally admitted that the main danger of imparting the disease to others depends on the diffusion of the desquamating flakes which separate from the surface of the body during convalescence. Mild measures of disinfection repeated at frequent intervals throughout, are much more certain and satisfactory than stronger ones employed solely toward the close of the process of skinning, or just before permitting a return to free intercourse and association with all.

Carbolic acid in proportion of three per cent. in ointment or oil constitutes the most reliable agent. With this, however, should be combined daily ablution with soap and warm water, so as to remove as rapidly and completely as possible the dry epidermic particles as soon as they become loose, the carbolized oil being rubbed on the surface after it is dried.

Such measures alone render isolation, when that can be carried out, effectual; even without isolation, when such cannot be carried out, they reduce to a minimum the risk of infecting others. Various methods of accelerating desquamation itself were tried and rejected as unsatisfactory; but eventually a plan was discovered.

The action of resorcin in causing the outer layers of the epidermis to separate without injury to the deeper ones is well known, and has been made use of in the treatment of ichthyosis and acne. Rubbed on as an ointment it did not produce the desired result in scarlet fever.

A resorcin soap would fill the indications, and in time Eichhoff succeeded in obtaining a stable resorcin soap. This was accomplished by making a soap chemically acid by adding salicylic acid.

When this soap is used to wash cases of scarlet fever, warm water begin always employed from the commencement to the close of desquamation, a notable diminution of the period occupied by peeling is observed. From the consideration of a large number of unselected cases the conclusion has been arrived at that the average day on which desquamation is first visible is the ninth. The average period from the onset of the disease till the end of desquamation was 55.5 days, no treatment having been employed.

In cases treated by the method detailed the average duration was 40.26 days.

In using the soap the nurses found it necessary to protect their hands by India-rubber gloves, or to use a sponge carefully in washing the patients, else their palms became tender from a thinning of the epidermis. On the average a patient must be isolated two months.

By washing with the resorcin salicylic soap, and smearing on some flank oil, he may be permitted to associate with his friends at the end of six weeks.

Boddie: On Relapse, or Recrudescence in Scarlet Fever; Two Cases, with a Note on the Literature of the Subject. (*Edinburgh Medical Journal*, October, 1891.)

A true relapse in scarlet fever as opposed to recurrence is comparatively rare. The two cases reported are unquestionably examples of relapse. The first patient was a boy of fourteen years. He passed through an ordinary attack of scarlet fever, followed by desquamation and albuminuria, and had apparently recovered when on the thirty-seventh day, after exposure to cold and wet, his temperature rose and he developed all the symptoms of scarlet fever. The illness continued six days and was followed by more marked desquamation than after the first attack.

The second patient was a boy of nine years, who passed through a typical attack of scarlet fever, followed by desquamation and albuminuria. On the twenty-seventh day the symptoms suddenly returned and continued five days, and were followed by partial desquamation.

The review upon the literature of the subject is quite complete.

Lane: Otitis Media, and its Complications. (*The Lancet*, September 26, 1891.)

Attention is called to some points in the anatomy of the ear incorrectly described by many surgeons and aural anatomists.

There is in the substance of the petrous bone, immediately behind the middle ear, an ovate cavity, inaccurately described as the mastoid antrum. This space may come into communication with the mastoid cells, but it is only an occasional occurrence.

It seems that the sole, but, important, purpose of this cavity is to secrete a viscid mucus, which lubricates the lining membrane and contents of the middle ear.

It is difficult to say what is the precise function of the membrana tympani and the ossicles.

Perhaps not the least important function of the former is to prevent evaporation and to prevent the entrance of cold air.

The presence of the bones and membrane is not necessary for hearing the sounds of ordinary conversation. At the same time sounds such as the ticking of a watch are heard less distinctly by such an ear than by one anatomically perfect.

In acute inflammation of the middle ear the antral and tympanic cavities become distended with mucus or muco-pus and a perforation of the membrane occurs.

Usually, with judicious treatment this heals; but instead there may result a condition similar to that present in some forms of ozæna. Extension to the internal ear may considerably impair bone conduction.

In these cases, in consequence of some occlusion of the antral aperture, the antrum gradually increases in size and a consequent thinning of its walls occurs.

The possible consequences of increased tension in the antral cavity are the following: Inflammation of the bone in relation with the antrum; of the periosteum covering the outer side of the mastoid process, and the interior of the external auditory meatus, and of the dura mater lining the adjacent portions of the middle and posterior fossa.

In the large proportion of cases of inflammation of the bone consequent on a primary acute otitis, no pus is found in the antrum, or in the cancellous spaces in the mastoid bone, or beneath the periosteum or dura mater.

In other cases, and especially where an acute attack is builded on to a chronic one, all these conditions are exaggerated, and pus may exist between the periosteum and

the mastoid process, or between the dura mater and bone, or in both situations.

The degree of inflammation of the mastoid process gives the surgeon no accurate indication of the condition of the dura mater. This is obviously a matter of the greatest clinical importance, since pus collected between the bone and dura mater may produce septic arachnitis or septic thrombosis of the lateral sinus.

The differential diagnosis between the various conditions which may result is sometimes easy; in others only a probable diagnosis can be made. Fortunately this makes no difference in the course of treatment.

The importance of optic neuritis as a symptom is discussed. Taken in connection with other symptoms it is considered by the author a symptom of the most vital importance, and one that has enabled the writer to save lives, in which the delay necessary for the development of other confirmatory symptoms would certainly prove fatal. Septic thrombosis of the lateral sinus is discussed with reference to the frequent production of rigors.

Abscesses in the temporo-sphenoidal lobe or cerebellum vary enormously as to symptoms.

The symptoms of extensive meningitis are usually unmistakable.

In regard to treatment of these conditions, the author's advice is this, "if in doubt, operate."

In suitable cases of acute inflammation of the middle ear great benefit may be obtained from leeching, free blistering, warm applications, irrigations, incision of the membrani tympani, etc. The adoption of a definite operative sequence in all complications is urged, upon the principle that it is of vital importance in every case to attack the primary source of the disease—namely the antrum—and by obliterating that cavity to remove any possible complication in future.

The course suggested in any apparently complicated case is the following: Expose the mastoid, remove the process with a gouge. A trephine or drill is considered as unsafe and inefficient. If the sinus is thrombosed the jugular vein must be tied below the clot.

If the sinus is obviously not completely thrombosed various measures may be used.

Having failed to find anything thus far, the cerebrum or temporo-sphenoidal lobes may be thoroughly exposed by a fine aspirating needle through the areas of the dura mater of the middle and posterior fossa which have been exposed behind and above the meatus. The author has

never experienced any evil result from needling in this region.

In any case, whatever else is found, the antrum must be obliterated, any portions of membrani tympani removed, and a large communication established into the back of the middle ear. Frequent irrigation and free introduction of glycerine and iodoform are relied on to obviate septic infection.

In chronic middle ear disease, where there is much deafness, foul discharge, recurrent attacks of pain in the mastoid process, etc., after the failure of ordinary treatment, the writer has cleared the middle ear and obliterated the antrum, restoring to patients in most cases more or less perfect capacity for hearing ordinary conversation, a freedom from discharge, and an absence of subsequent risk from complications.

In this as in the previous similar operative treatment, already described, the patient for the future irrigates the middle ear once a day, with warm water, then introduces a drop of glycerine and iodoform into the meatus, and then a plug of cotton, wool, or a compressed cap of the same substance is inserted in order to prevent evaporation. By these means the functions of the antrum and of the membrani tympani are replaced artificially and satisfactorily.

Wyllie: The Functional Disorders of the Vocal Mechanism. (*Edinburgh Medical Journal*, October, 1891.)

Two mechanisms in exact coördination with each other are concerned in the production of speech.

1. That of the larynx which is the producer of the vocal element.

2. The oral element, by which the sounds of the larynx are modified, and by which new sounds produced within the mouth itself are added to the vocal tones of the larynx.

If the ordination becomes imperfect the speech is at once interrupted and labored. That the defect of speech in the common variety of stammering is due to deluged action of the laryngeal mechanism in attacking the first syllable of words, is an old proposition which is maintained to the present day by the best observers. The truth of this is shown by many familiar proofs. Thus, the stammerer rarely, if ever, has the slightest difficulty in song. In like manner they rarely have trouble if they intone or read poetry. All this shows that when a primary demand for voice is made, as in song, or other forms of rhythmical speech, sufficient energy is supplied to the

laryngeal mechanism to cause the difficulty to disappear.

Intelligent use of the voice is one of the essential elements of speech, and this can only be fully attained by a knowledge of individual letter-sounds. Such a knowledge will enable him to readily throw the voice into the vowel or consonant that contains voice, and to touch off lightly any consonant that does not contain voice, bringing the voice out immediately in the vowel or vocalized consonant that succeeds it. For this purpose the author has prepared an alphabet, so arranged that the voiced elements are separated distinctly from the voiceless. Such alphabets are not new. They have been constructed by Arnott, Pitman, in his phonetic system, Max Müller, Bristow, and others.

In studying the phenomena of stammering three general causes are final:

a. Faults in the vocal mechanism, by which term is meant not only the larynx, but also the lungs and muscles of respiration.

1. Want of promptitude in the supply of voice during the pronunciation of the initial syllable.

2. The voice may not only lag but may also be feeble in quantity, because the speaker does not fill the lungs with air, but attempts to speak from a half empty chest.

3. The voice sometimes breaks from its natural pitch during a struggle in speech and assumes a much higher key.

4. There may be drawback phonation, the result of an attempt to speak during an inspirating effort.

b. Faults in the oral mechanism, caused by surcharge of energy.

1. The lagging of the voice and misdirection of energy cause the stammerer to surcharge his oral mechanism with energy so that he sticks at his explosives and prolongs his fricatives and nasal resonants.

2. From the nerve-centres of oral articulation thus surcharged, an overflow, in some cases occurs, producing spasmodic movements in the face and sometimes in other parts of the body. The most common of these are spasmodic twitchings of the lips and cheeks, working of the jaw and forcible winking of the eyes.

- c.* Overflow into the upper glottis. In a few cases, the energy imperfectly supplied to the vocal mechanism, flows excessively not only into the organs of articulation, but also into the upper or non-vocal parts of the larynx. This part has the false cords for its inferior margin, which is unclosed during phonation. If, however, the false cords close over the true and shut off the passage of air by their val-

vular action, the voice is at once interrupted and the patient, with open mouth and congested face, silently struggles without being able to emit the imprisoned air.

In beginning treatment it is best to first explain clearly to the patient the nature of his defect, and to show him that it is not the mouth but the larynx that is at fault. He must therefore attend only to the voice and speak in a full, resonant but natural tone. He should practice reading aloud, at first poetry, then prose. If he has an ear for music he should cultivate the voice in song. He should be taught the physiological alphabet for which complete instructions are given by the author. He must be taught to fill the chest with air, but if he grasps the great principle of speaking with voice he does this instinctively. Extreme cases require the instruction of a specialist, but, as a rule, persevering and intelligent practice will enable the patient to effect a cure for himself.

The prognosis depends largely upon the intelligence of the patient. Age is an important factor, being most favorable between twelve and sixteen. Cases with severe spasmodic complications are unsatisfactory.

III.—SURGERY.

Wackerhagen, Geo.: Report of a Case of Appendicitis. (*Brooklyn Med. Jour.*, 1891, v., 642.)

The patient was a lad, æt. six years, who had been eating largely of grapes on the preceding day. On the evening of the 7th of November, 1890, he came home complaining of severe pain in the stomach and abdomen. He was also vomiting, and had frequent painful movements from the bowels. The next day the temperature was $101\frac{1}{2}^{\circ}$, the pulse 116 (sleeping), and there seemed to be considerable tympanites. The pain still persisted over the region of the cæcum, and the temperature varied between $98\frac{1}{2}^{\circ}$ to $101\frac{1}{2}^{\circ}$. On the 15th there could be felt, but very indistinctly, a deep indurated tumor in the right inguinal region, just above and to the left of the right anterior superior spinous process of the ileum, and also noted retraction of the thighs. Nothing could be determined by the rectum.

In spite of improvement in his general condition, the pain and induration remain, so that on November 20, an incision was made and a small abscess situated behind the

ascending colon was opened with a discharge of pus and blood. Another smaller abscess was opened behind the cæcum. At the bottom of this last cavity the appendix could be indistinctly seen perforated and firmly fixed by adhesions. The lower part of the abscess cavity was then explored, and it was found necessary to make a counter-opening through the lumbar region, through which a drainage-tube was passed. The child made a good recovery.

An exploring needle should never be used until an incision has been made to determine the peritoneal relation as well as the relation of the intestines, in order that we may be certain that we are not wounding or infecting tissues which are in a healthy condition.

Alexandrof: Surgical Treatment of Tubercular Peritonitis in Children. (*Rev. Mens. des Mal. de l'Enf.*, September, 1891).

The following case is reported. The patient was a girl three-and-one-half years of age. Two of her paternal uncles were tubercular. She was born at term and nursed by her mother. At the age of two years she had whooping-cough, which lasted five months. A short time afterward she was attacked with diarrhœa, and the belly began to enlarge and show clear evidence that it contained fluid. The heart and lungs were normal, the liver and spleen were not hypertrophied, the urine was normal. A diagnosis of tubercular peritonitis was made and the child was kept under observation one month. At the end of this period she was worse, and abdominal section was performed. Nearly two litres of transparent yellowish-green fluid were removed from the abdomen. The peritonæum was injected and tubercles were scattered over it. There was no irrigation, the wound was sutured, a drainage-tube was used, and iodoform dressings were applied. At the end of three weeks fever and diarrhœa recurred and the fluid began to accumulate again. The wound was reopened and the peritonæum found thickened and œdematous. Adhesions sprinkled with tubercle united the folds of the broad ligament. The cavity was irrigated with boracic acid solution, iodoform was sprinkled upon the peritonæum, a drainage-tube was applied and the wound sutured. This operation was followed by complete success, the patient going home cured, in six weeks. Twenty cases of abdominal section for tubercular peritonitis have been reported in children from two to fifteen years of age. All resulted in apparent cures.

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Original Communications.

ABSCESS OF LUNG.*

BY FRANCIS HUBER, M.D.,

New York.

BENNY J., four years of age, pale and emaciated; presented the appearance of a child suffering with a long-continued suppurative process at the time he came under my observation in October, 1888. The history in brief was, that he had been sick about five weeks with a pleuro-pneumonia. During his illness, he had lost considerable flesh and became pale and waxy-looking. Fever present throughout the course of the disease; at the outset the temperature was continuous, later on varied considerably—sometimes high, at other times but moderate. Irregular chills had been observed, with profuse sweating now and then. The cough was of a distressing character, not attended with much expectoration. Dyspnoea considerable; diarrhoea at times.

Physical examination revealed flatness on the right side in the infra-clavicular and mammary regions. Axilla and posterior portions normal. Vocal fremitus absent over the area of flatness. Auscultating, find an absence of vesicular breathing and voice during quiet respiration. Deep inspiration or coughing elicited faint and distant bronchial breathing. Posteriorly on the right side a few coarse râles discovered. Left side of chest normal. Heart's action regular, somewhat accelerated; apex beat not displaced. Liver not displaced downwards.

*Read by title before the American Pediatric Society, Washington, D. C., September 23, 1891.

Diagnosis.—Localized empyema of the right side anteriorly, corresponding to the infra-clavicular and mammary regions.

October 31st.—In view of the interesting nature of the case, the child was presented at the Vanderbilt Clinic. Prof. A. Jacobi confirmed the existence of the above-mentioned physical signs and suggested the possibility of the existence of an intra-pulmonary abscess. An exploratory puncture revealed pus.

November 1st.—Assisted by Dr. Charles E. Denhard and Dr. Margolies, the patient was chloroformed and as a preliminary measure an exploring syringe was again introduced and pus readily found. Certain of my diagnosis of localized empyema, I rather injudiciously withdrew the needle and left myself without a guide. An incision about two inches long was made along the upper border of the fourth rib and the structures were divided layer by layer until the pleura was reached which was then incised, but no pus escaped. A long exploring needle was now passed in in different directions a number of times, finally pus was detected. A grooved director was then introduced alongside the needle as a guide, upon which a pair of dressing forceps were inserted and the opening dilated. Considerable blood mixed with pus escaped. A drainage-tube was introduced and the cavity gently irrigated. Dressing of iodoform-gauze and borated cotton applied.

The operation clearly demonstrated to Dr. Denhard and myself the intra-pulmonary character of the abscess, and showed that Prof. Jacobi's suspicions as to the exact nature of the affection were correct. Adhesions had fortunately taken place between the visceral and parental pleural surfaces, and the abscess was therefore reached without involving the general pleural cavity. The hæmorrhage from the lung upon dilating the opening with the dressing forceps was brisk but not excessive. The abscess was probably situated about half an inch beyond the pleural surface. The main cavity of the abscess was evidently, not incised for two days subsequent to the operation, the discharge was very much more profuse, several ounces of pus being discovered upon the dressings. An extensive pneumonia developed in the meanwhile (bronchial breathing being heard in the axilla and posteriorly above) no doubt trau-

matic in character, due to punctures made in the attempt to locate the pus after the incisions had been made and the pleura opened.

Without any difficulty pus was readily detected by exploratory puncture the preceding day and just prior to the incisions. When the pleura was incised, as the landmarks were obliterated, considerable trouble was experienced, and several punctures were made before the pus was located. Had the precaution been observed to leave the needle in situ the difficulty would not have been met with, nor would the traumatic pneumonia have been so extensive. In a subsequent case I shall certainly leave the needle in as a guide. The pneumonia resolved in a satisfactory manner in about a fortnight. The discharge from the abscess gradually diminished and the patient began to improve rapidly. In irrigating, it was noticed that when a gentle stream was allowed to flow no cough occurred; if however a little force was employed a severe spasmodic paroxysmal cough followed, to cease only when the fluid which had escaped into the bronchi had been expectorated. A further argument in favor of the intra-pulmonary character of the abscess.

January 17, 1889.—The patient was presented at the Academy of Medicine (Section of Surgery). General condition excellent; a little rude breathing at the upper and posterior portion of the right lung; anteriorly, breathing good. A small sinus is still left with a small drainage-tube in situ, secreting about one drachm in four days when the dressings are changed. A forcible injection of fluid still produces the spasmodic cough. The tube was retained for some time longer, and in May the parents moved to better quarters, the patient being taken out daily and allowed to play and enjoy himself in the park. Under the improved hygienic conditions the discharge diminished until but a few drops were found upon the dressings at the end of several days. The tube was now dispensed with, the sinus gradually contracted and closed completely towards the latter part of August, ten months from the onset of the disease.

Purulent collections, the result of tuberculous or metastatic processes, embolic or pyæmic in their nature, or

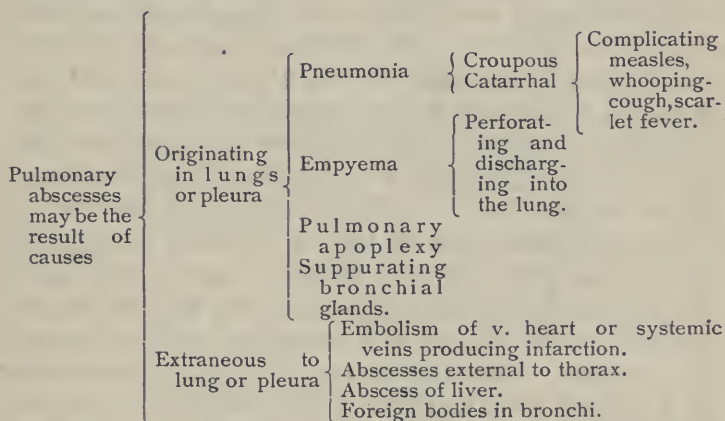
those induced by traumatic influences, or the impaction of foreign bodies in the bronchi are by no means infrequent in the lungs. Simple non-tubercular and non-metastatic abscess on the contrary are, but rarely encountered. According to S. Seabury Jones, pulmonary abscesses may be met with in one of four forms.

In the first variety the symptoms are very obscure from the beginning and remain so until a discharge of pus takes place. In the second class the symptoms resemble those of pleurisy with effusion, and in the third those of pulmonary tuberculosis. Finally, the fourth variety is associated with pneumonia, which advances slowly from one lobule to another or is characterized by a tendency to skip from one lung to another.

The affection is occasionally met with in children of weakly constitutions living under poor hygienic and sanitary conditions. The general health in these cases is lowered and debility becomes an important factor in the causation of the disorder. Meigs and Pepper (*Diseases of Children*, seventh edition, page 162) say "abscesses are not very uncommon in the lobar pneumonias of children. They occur as a result of the third stage of the disease." Other authorities, as Henoch, Gebhardt, Eustace Smith, on the contrary teach that the condition is rather rare. Minot, (*Cyclopædia Diseases of Children*, vol. ii., page 589) states that suppuration and gangrene are rare in children, only occurring in the severest and usually fatal cases.

Ashby and Wright devote less than twelve lines to the subject. They claim that the abscesses are mostly the result of septic embolism from some distant suppurating centre, as in an otitis or some other bone lesion, and associated with pyæmia. They are usually small and situated on the surface. Small abscesses may be secondary to an empyema, the latter finding its way via a small abscess into the bronchial tube. Minute abscesses are sometimes a sequence of a broncho-pneumonia secondary to scarlet fever, measles or whooping-cough, suppuration taking place in the lobules immediately surrounding the terminal bronchioles.

Delafield remarks, "that the inflammatory processes may be so severe in rare cases, and cause such compression of vessels from excessive exudation of fibrin that death of small portions of the lung tissue results. Then necrotic portions become separated from the surrounding lung, which is infiltrated with pus, and in this way abscesses are formed."



In children as well as in adults, the process may be met with in the insane. Such a case was under my observation a few years ago. Sammy L., æt. eleven years; very childish in his way with occasional brief maniacal attacks, had been sick for several weeks with symptoms of an irregular typhoidal character. Hectic fever with irregular chills present. The boy emaciated rapidly, coughed a good deal but did not raise much. Dyspnoea quite marked, reminding one of effusion. Physical signs negative with the exception of dulness of posterior upper portion of right lung with a few râles. At one of my visits he was seized with a severe paroxysm of coughing, during which some pus, quite offensive, was expectorated. As the patient was rather intractable, a very careful physical examination was not possible. He began to improve after this, and was soon able to go about. He then passed from under my observation, being advised to go to a mountainous district. After a few months he returned to the city fully restored to health as far as his pulmonary trouble was concerned, the cough having disappeared, his general physical health about as usual. He was still in good health when heard from a short time ago.

The old writers remark: "When after a pneumonia an abscess forms, there is fever, dry cough, dyspnœa, swelling of the feet." This picture may be true in advanced cases or large abscesses. The recognition of the complication at the onset is obscured or rendered difficult of correct interpretation by the presence of symptoms which preceded the suppuration. When the latter has been fully established we may have the characteristic evidence of pus formation. In the simplest and most frequent clinical form, that which follows a pneumonia, a history of rigors, sweating and increased vital depression with the temperature variations, should direct our attention to the possible existence of this complication, though even now we may not be able to localize its exact position.

The temperature may be high, or if it falls, rises rapidly and assumes a hectic type. There is usually great weakness, the tongue becomes dry and brown, the complexion dull and earthy-looking with perhaps lividity of the eyelids and lips. Our suspicions may be aroused or verified by a sudden expectoration of pus, more or less copious, followed by the physical signs of a cavity at a circumscribed portion of the lung, previously in an infiltrated condition.

It is probable, though no careful examination of the sputum of children suffering from the disease has been reported, that particles of lung tissue, pus corpuscle, and crystals (fat and hæmatoidin) described by Leyden, as occurring in adults, occur under the same conditions at an earlier age. If the abscess be small and deeply seated, or if multiple and disseminated, the signs may be obscure or wanting. If in close proximity, the smaller abscesses may coalesce to form a larger one. Dr. L. E. Holt (*Medical Record*, April 16, 1887) reports an extremely interesting case in a little girl but three months old. The child lived twenty-four days after the onset of the trouble, and at the autopsy the right lower lobe was found to have been converted into an abscess sac with thin walls, the cavity holding about four ounces. In the *Medical Bulletin*, Philadelphia, September 13, 1890, D. Maclean presents

a case of suppuration, with destruction of the entire left lung, treated by resection of ribs and drainage of cavity, followed by recovery.

In the fatal cases of broncho-pneumonia following whooping-cough, measles, and scarlet fever, numerous yellow spots, the size of a millet seed or larger are scattered throughout the lungs, *graines jaunes* or *abcès peribronchite* of French authors. They are minute abscesses surrounding the terminal bronchioles formed by the softening of the pneumonic lobules.

The suppurative process may run an acute course or extend over a period of months. It may occur coincidently with the original disease, or may not manifest itself until a later period, the lung tissue having remained partially consolidated. In some instances the walls are sharply defined, in others there seems to be no limiting zone, the suppurating process apparently being gradually lost, or rather becoming blended with the normal pulmonary structures.

The diagnosis not being possible, the morbid process continues, and the abscess may ulcerate, the pus finding its way into a neighboring bronchus and is expectorated, or ruptures may take into the pleura and set up an empyema. The abscess may become encysted, undergo calcification or caseous degeneration, and the seat of tubercular infiltration. Finally adhesions may form and the pus discharge externally through the integument or into an adjoining viscus. In not a few cases the abscess grows larger and larger until the entire lung is destroyed, giving us the physical signs of pyo-pneumothorax.

Unless the abscess ruptures into the bronchial tubes, and the contents are expectorated, the physical signs are not characteristic of the lesion. Before perforation occurs, we have the evidence of local infiltration and consolidation. The sudden, more or less copious expectoration of pus without marked offensive odor in the course of a pneumonia is characteristic of the rupture of a pulmonary

abscess into the bronchi. The physical signs now reveal the existence of a cavity of a greater or less size.

Microscopically we find in the expectoration the *débris* of lung structures, elastic lung tissue. According to Leyden we find in addition fatty crystals, pigment *débris*, hæmatoidin and fibrabun, and finally micrococci, differing from those of gangrene in possessing but little motion and in not giving the iodine reaction.

Differential diagnosis.—It is often difficult to differentiate between abscess of the lung and gangrene, except that in the latter the pathological condition and course may have a causative influence in the production of the results. (Meigs.)

Gangrene and abscess observe a close parallelism; that which determines the results is still somewhat obscure, it is probably dependent upon the infecting agent, upon some radical difference in the pathogenic micro-organisms. In gangrene the constitutional disturbances are profound: the odor is fœtid, pulmonary and elastic tissue not present, and the expectoration is dirty green, fœtid and penetrating.

Localized empyema may be excluded by the absence of a history of previous attacks of pleurisy. The absence of earlier attacks of pleurisies in infants makes the occurrence of encysted empyema rare at this age. In older children, who may have suffered from former pleurisies, adhesions may have formed, and the fluid may be encysted.

Empyema discharging through the bronchi may be excluded by remembering that the amount of pus discharged is large, rupture takes place at a later date, and the physical signs reveal fluid in the pleural cavity.

In hepatic abscess discharging through the bronchi, the discharge is copious, dirty brown and paroxysmal; microscope shows *débris* of live tissue. Peripleuritic abscesses are of rare occurrence and usually secondary to empyema or caries of ribs. In doubtful cases, the examination of the sputum for tubercle bacilli will enable us to exclude tuberculosis.

The prognosis is grave if the complication arises in a feeble subject, or if a typhoid state exist. The dangers incidental to abscesses situated internally, and not amenable to surgical interference must not be lost sight of. In addition to exhaustion and sepsis, hæmorrhage from ulceration of large blood-vessels may complicate the case.

Treatment consists mainly in the judicious use of stimulants, tonics, and antiseptic inhalations. The exhaustion must be counteracted and infection prevented by proper incision and drainage.

In conclusion, the propositions enunciated by Drs. Spillman and Haushalter (*Revue de Méd.*, Aug. 1888) who record nine cases of abscess following pneumonia, seven being successfully treated by operation, are presented. The following rules are laid down by them for our guidance:

1. Before operation the position of the abscess must be determined as accurately as possible, and especially by puncture.

2. As a rule, a pulmonary abscess should not be opened during the course of an acute pneumonia.

3. Before the abscess is opened it is well to excite pleuritic adhesions, if these do not already exist. This should be done by resection of a rib and suture of the two pleural surfaces, or by means of the actual cautery. According to Rüneberg, however, the absence of adhesions does not contra-indicate operation.

4. The abscess is best reached by resecting a rib and piercing the lung with a Thomas cautery.

5. Free drainage is essential; antiseptic injections are best avoided, dry dressings being preferable.

THE white of an egg, with a little salt, and six ounces of water, well beaten and shaken, is a good mixture, which can take the place of infant food temporarily, but is an invaluable makeshift in severe intestinal catarrh, or a permanent nutriment in the same when added to other food.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

THE ÆTIOLOGY OF STOMATITIS APHTHOSA.

BY F. FORCHHEIMER, M.D.,

Cincinnati, O.

THE term aphthosa, as old as Hippocrates, has caused more confusion than any other in the nomenclature of diseases of the mouth. Even at the present day, so much or so little may be included in the term aphtha that, for the sake of precision in diagnosis, the word should either be dropped entirely or its meaning be so clearly defined that there can be no reasonable room left for error. Without going into an historical development of this part of the subject, which I have done elsewhere, it will be well to state here that the aphthous form of stomatitis referred to is that disease first defined by Bohn. To Bohn, at least, belongs the credit of first having published the views of other authors besides himself, which finally culminated in making a precise clinical picture of stomatitis aphthosa. If we could adhere to this, and it seems both feasible and practicable, we would have a definite term for a clearly defined clinical picture. If, on the other hand, any ulceration of the mouth, any small loss of substance in the mucous membrane is called an aphtha—as has been done and is being done—we will never arrive at any exact conclusions. Stomatitis aphthosa is a disease characterized by general and local disturbance: the general disturbance in the form of fever and other constitutional symptoms, the local disturbance as an eruption of aphthæ. The aphthæ (and I differ somewhat from Bohn here though not essentially) are to be looked upon as vesicles modified by the locality in which they appear, *i.e.*, the mouth. They are also changed by the action of moisture, being constantly bathed in saliva from the irritated mouth. When, as is not infrequently the case, the eruption also appears upon the skin around the mouth, there can be no doubt of the nature of the eruption, and if, as I have shown latterly in one case, applications of warm water are kept up constantly, the course

* Read before the American Pediatric Society, Washington, D. C., September 25, 1891.

of these vesicles will be seen to be the same as of those within the mouth. In brief, then, we would call stomatitis aphthosa a vesicular eruption in the mouth with certain constitutional symptoms.

The cause or the causes of this disease have eluded detection; every one who has written on the subject has his own views to a greater or less extent; without disregarding the views of others, there is always one special pet view on this subject. Perhaps the greatest number of authors is agreed on ascribing this disease—like all others—to those glittering generalities that are so well known to all of us in connection with the ætiology of children's diseases. The one calls it struma, the other scrofula, the third malnutrition, the fourth tuberculosis, and so on *ad infinitum*. I am not prepared to say that unhealthy children are more predisposed to this disease than healthy ones. Whatever our theoretical views may be regarding the vulnerability of children otherwise affected, my observation has led me to believe that the general condition of a child, as far as we can see, has nothing to do with an attack of stomatitis aphthosa. That there is an individual predisposition I firmly believe; in what this consists I do not know; children in the best of health will have an attack sometimes without an apparent cause. Teething, as everywhere else, has been accused of producing this trouble. It can hardly be out of place to say that this view is simply based on the method of reasoning: *post hoc ergo propter hoc*. If we were to accept everything that follows or accompanies the coming through of teeth as being produced by teeth, we would better close the book as far as the ætiology of disease for the first three years of life is concerned. It can be proven beyond a doubt that aphthæ are not tubercular, therefore, not scrofulous nor strumous. There is a rare form of tubercular stomatitis, so rare that every case ought to be recorded, but, as far as I am able to learn, it has nothing in common with the trouble we are now discussing.

It is quite positive that no evidences of tuberculosis have been found in all the bacteriological investigations made

by others as well as by myself. Catching cold has, as always, been brought to bear its burden in this disease; so little that is positive can be said in this direction that the less we say the better.

After these general causes are disposed of, the most common belief will probably be found to be that aphthæ are always due to a deranged stomach. This is a very natural view for aphthæ are, as a rule, associated with some derangement of the alimentary canal. The routine practice will be about as follows: ulcers in the mouth a positive indication for rhubarb, calomel or hydrargyrum cum creta. A careful examination of each individual case will prove that the child was ill before the sore mouth came on, that, as it were, the gastro-intestinal symptoms represent a sort of period of invasion for the disease. No one would for a moment believe that the eruption of scarlatina comes from a deranged stomach although it, of all diseases, is most frequently preceded by vomiting. Errors of diet are so common in childhood that it is almost impossible to exclude them in reckoning upon causes for disease. I have seen three children in the same family have an attack of aphthosa stomatitis; in the two older ones error of diet could be taken into consideration, in the third this was impossible as he had taken nothing but sterilized milk.

Yet we will constantly be confronted with the statement that the child's stomach has been deranged for the last few days, now the ulcers have appeared and certainly there must be some connection between the two. It is almost impossible to conceive of the mucous membrane of the mouth being affected by continuity from that of the stomach; the nervous connection is a very remote one, but the clinical fact remains as above stated. If the alimentary canal is primarily the cause of the trouble there is but one explanation, and that is, that a something is excreted by the saliva which causes these ulcers to be formed. But, for various reasons, the mechanism is not so simple for aphthæ; it might be called upon for explanation of the existence of those small follicular ulcers

so common with some patients, and would possibly be satisfactory; in aphthous sore mouth there is another factor that seems absolutely essential.

For the last ten years the view has been gaining ground that stomatitis aphthosa is the manifestation of the foot-and-mouth disease in cattle. This view was first brought forward by Sagar in 1764, and has been corroborated by many observers in various parts of Europe (see Bollinger, Ziemssen, Vol. III., p. 581). Hertwig (1834) was the first to prove the connection by direct experimentation; he and three other physicians drank infected milk, and all three were attacked by stomatitis aphthosa; in Hertwig's case the eruption also appeared upon the hands and feet. These results were verified by Jacobi in 1846.

On the other hand, a great many authors, and Cayrim, lately, have had occasion to give their evidence on the other side of the question. It must be confessed that the number of observers which has been able to verify this connection is steadily increasing and that the view itself is being more generally accepted. This would place the disease among the class of infectious diseases. Admitting that this view is correct for Europe, according to my information from veterinary surgeons and their literature it could not be true for this country.

Foot-and-mouth disease is an exceedingly rare disease in this country—it is claimed by some that no well-authenticated case is on record.

From the report of the United States Treasury Cattle Commission, 1883 (*American Veterinary Review*, vol. vii.), I learn that an invasion of foot-and-mouth disease swept over northern New York and New England in 1871. In 1883 diseased cattle were landed in New York by two ships (France and Nessmore); these ships are employed to carry cattle, and the cargo which was returned to the other side became infected on board, as the period of incubation seems to be only thirty-six hours. This and other previous experiences (see a long correspondence, Report Department of Agriculture, Diseases of Animals,

Washington, 1881) give rise to the idea, held in Europe, that the foot-and-mouth disease may originate in this country. In 1884 Dr. A. A. Holcombe (*Veterinary Review*, vol. viii.) reports an epidemic in Kansas, but ill effects in human beings are not mentioned. In the same year George H. Bailey, D.V.S., reports an epidemic in Portland, Maine, brought in by Hereford cattle. These are the only records of epidemics in this country I have been able to find; it is claimed by veterinary surgeons that no case has ever originated in this country, and by some, that no well-authenticated case is on record, as has been stated before.

However this may be, I have taken the trouble in every instance to look into the milk supply, and have questioned the surgeon in attendance upon the dairies from which the milk supply has been obtained, always receiving the answer that there never had been a case of foot-and-mouth disease in Cincinnati. Infection would be the most rational explanation for the causation of the disease, and in order to determine whether there could be a *contagium vivum*, I have had the aphthæ examined bacteriologically, all precautions being observed and all the various methods being employed. The result, where positive, was to show the presence of pus-producers, and nothing more.

Dr. Eugene Fränkel (Virch. Archiv., Bd. 113, 111) describes the process as a pseudo-diphtheritic one (Weigert), practically agreeing with Baginsky (1884), who found micro-organisms, cocci, and a few bacilli. Fränkel examined three cases bacteriologically; in two of which he found the staphylococcus pyogenes citreus (Passet), and in the other staphylococcus p. flavus (Rosenbach)—he hastens to the conclusion that these organisms are the cause of the disease, although he has never succeeded in producing any lesions by inoculation in lower animals, thus disregarding one of the most important evidences in regard to the pathogenic nature of an organism.

Accepting the view of the connection between foot-and-mouth disease and stomatitis aphthosa, rejecting the

connection for this country, we are left the choice of two conclusions: either we do not have stomatitis aphthosa, or the disease may be produced by more than one cause.

In regard to the first assumption, the non-existence of the disease in this country, I believe everyone will agree that we see as well-defined cases here as can be seen anywhere in Europe. I am sure that I have seen as well-marked aphthæ in my own clinic as I have abroad. The variety of the low forms of life found shows, either, that we have not found the pathogenic form, or, that their invasion is a secondary one, due to an invasion upon a soil made fertile by the aphthous process. In the foot-and-mouth disease any abraded surface may become affected, so that both a local as well as a general infection must be accepted; whether both causes be the same, cannot be proven at present. Cases are on record, in the human being, in which, upon the drinking of infected milk, the eruption also appeared upon the hands (Hertwig). In these cases the eruption must certainly have been due to general and not local infection. In the absence of pathogenic forms, we must look for some chemical agent that can be carried into the circulation producing an eruption upon the mucous membrane as well as the skin. Purely theoretical as this may seem, it will be found to have been accepted by dermatologists for many skin diseases (eczema, herpes) and only awaits conclusive proof in the isolation of these bodies, which will become possible with the further advances in animal chemistry.

Now, taking for granted that a chemical body, formed in the foot-and-mouth disease in cows, carried by the milk, produces stomatitis aphthosa in the human being, that we have stomatitis aphthosa in the absence of this foot-and-mouth disease, the inevitable conclusion must be that more than one cause can be found for this disease. Possibly, when bacteriological methods will become still more developed, a lower form of life may be found as the first cause of this disease; for the present the view seems untenable, especially as it has been proven that inflam-

mation may be caused by other agents than lower forms of life. (Grawitz, Bucher, and others.)

In addition, we must be reminded of the fact that aphthæ are frequently associated with other diseases: pneumonia, intermittent, gastro-intestinal disturbances, the acute exanthemata, etc., so that the position of multiple causes would become very much fortified. It seems out of the question to accuse a local cause, although wounds and burns may produce a lesion that cannot be distinguished from aphthæ, so that, in this direction, there seems nothing left but the acceptance of some general causes indicated before. The question would arise: how do these causes produce lesions in the mouth?

It has always seemed to me that aphthæ were nothing more nor less than the eruption of herpes. The reasons for this are as follows: If we make an artificial aphthæ (Gerhardt, Bohn, and myself) by any cause which would produce a vesicular eruption upon the skin, the lesion is identical with the one we find in stomatitis aphthosa; in a great many cases of stomatitis aphthosa we find herpes facialis, the eruption being continued from the mucous membrane to the skin, and lastly, the diseases in which herpes occurs most frequently are those in which we commonly find that form of mouth trouble. If we take a vesicle and develop it in the mouth, it will, as has been stated before, undergo the same changes as an aphtha. In brief then, the ætiology of stomatitis aphthosa, in the great majority of instances, is to be studied as the ætiology of herpes non parasitica. Dermatologists regard herpes, especially herpes zoster, as a disease of nervous origin (Bärensprung, Kaposi, Sattler, and others); this would include the herpes secondary to other diseases, for no one can claim for the herpes facialis of pneumonia that it is a zoster, occurring, as it usually does, upon both sides of the face in children (Thomas). The same can be said for stomatitis aphthosa; it does not follow the course of any one nerve, exactly, although in the majority of instances the eruption will be found along some branch of the fifth pair of nerves, especially the lingual.

Verneuil (*Annales de Dermatologie*, 1885) states that herpes may be of traumatic origin; when a nerve is injured the eruption will appear at its peripheral distribution.

In those cases, then, in which we have been able to find the pathological lesion of herpes, it has been found to be some irritative change in the ganglion from which the nerve arises, or in the nerves themselves. Naturally there must be a something which produces this lesion and it would not be an unreasonable supposition to look for this something in the form of a body the result of bacterial activity or some faulty process in the digestive apparatus. A similar process, not exactly analogous, will be found in diphtheria, where the Loeffler bacillus produces the local manifestations and the toxin the remote ones. If we take the poison of the foot-and-mouth disease, this will represent the toxin of diphtheria, already formed, which, absorbed from the intestinal tract, produces the general disturbances and finally the aphthæ, as the result of irritative changes in the nerve ganglia. This something, called ptomaïnes by the modern French writers, does not require for its origin the presence of microbes. It may have its origin within the body, as the result of a perverse digestive process, within the alimentary canal, the liver, or even during the process of reduction within the circulation.

Parrot and Erb were the first to have claimed that herpes might be looked upon as an infectious process, and Hardy (1885), Delétang (1886), Landouzy (1883), and Feulard (1888, *Dictionnaire Encyclopédique des Sciences Médicales*) have continued the theory, Feulard arriving at the same conclusions that I have expressed above.

Nothing more can be claimed for this view than that it is an hypothesis, with many things necessary to be proven before it can become susceptible of positive proof. The original poison must first be isolated, it will then have to be detected in the circulation, and finally, it will have to be proven that this poison is capable of producing aphthæ. But if we grant the connection with foot-and-

mouth disease, and at present this is the result of observation rather than of modern scientific reasoning, it would seem that there is justification for the view expressed before. Although so much is left to be proven before this view can be accepted, we are nevertheless justified in expressing it though purely the result of observations in the various forms of herpes, and deductions from these observations.

The last ætiological factor is contagiousness. Aphthæ will be found in several members of one family at the same time. I have had occasion to observe this in several instances. This is the only evidence that could be brought forward to prove the contagious nature of the process. It would seem more natural, however, to claim that the same cause has been operating upon these various members of the same family, although the aphthæ will not appear on the same day in each individual. The latter fact could be readily explained by taking into consideration the varied susceptibility of individuals, and the quantity or quality of the poison introduced into each one of these individuals.

In conclusion I would sum up the results, as follows:

- I. Stomatitis aphthosa is a disease produced by some form of deleterious material in the circulation.
- II. This material may have its origin in various processes, bacterial or otherwise.
- III. This material may, therefore, be of various kinds.
- IV. This material acts upon a nerve or nerves, or upon a nerve-centre or nerve-centres.
- V. Producing an herpetic eruption which is the aphthous process.

DISCUSSION.

Dr. KOPLIK.—I think all of us have had hundreds of cases almost monthly of aphthæ of all sorts, and nobody can appreciate the difficulty of research as we can. We must consider how difficult it is to find out the cause especially as Müller has shown how many different bacteria there are in the mouth. Dr. Forchheimer has done something to bring him into line with the most advanced

investigators of the day. He has ruled out those aphthæ or losses of tissue which Epstein has tried to prove were nothing but a result of traumatism and subsequent infection. I allude to the so-called Bednar's aphthæ. In these cases the aphthæ are situated at the posterior part of the hard palate where normally we see a white reflex appearance of the mucous membrane. These cases Epstein has persisted in saying were purely traumatic. He has maintained principally that the nurse rubs most prominently that part of the hard palate wherever the reflex is seen, where the blood vessels are not so numerous as in the other portions of the hard palate and necrosis takes place more readily. He had therefore instituted a rule that no one in his ward was allowed to wash a healthy baby's mouth. After this rule was adopted where cases of these so-called aphthæ were found in the wards of certain midwives, it was considered that this rule had been transgressed. I expect to see the time when Professor Epstein's views will be vindicated and these cases excluded from the infectious forms of stomatitis.

Dr. PUTNAM.—I want to ask Dr. Forchheimer whether it is possible to consider this buccal herpes as practically the same thing as herpes zoster and whether herpes zoster has been shown to have a bacterial origin. He excludes reflex disturbances of digestive organs, and yet I think this disease might be due to some reflex causes. Of course, both may some time in the future be traced to bacteria, but if herpes zoster may be due to irritation of nerves, why not herpes labialis and aphthæ. I am very glad this subject has been brought up for in this country the word "aphthæ" has no particular meaning. I have seen follicular tonsillitis called aphthæ.

Dr. ROTCH.—These terms have been used very loosely and I think we, as a society, should take a decided stand and possibly drop the word altogether, as Dr. Forchheimer has suggested. It would tend to greater exactness. I never use the word except to say to my students that it has been used very indiscriminately. I am accustomed to use the word stomatitis with an adjective, such as ulcerative to differentiate the form. Dr. Forchheimer has done so much good work on this subject that he has become an authority in it. Now if he would suggest how to do away with this term that means nothing, we shall feel greatly indebted to him.

Dr. ADAMS.—It is a singular thing that occurring in the same family in two or three children there is no conta-

giousness. I have seen five or six children in a wealthy family all taken sick at the same time with the disease, in this city. It is on this ground that we have to fight the homœopaths most frequently. During an attack of diphtheria they call all these cases diphtheritic, and of course great glory redounds to them in curing them so promptly. The sanitary inspector in Georgetown has been called to houses where he had examined the children and where there was no diphtheria but a stomatitis or tonsillitis. We must separate the catarrhal from the ulcerative form because it is a distinct lesion occurring in the buccal mucous membrane and on the outside of the lips in some children. It occurs in the same family and in members occupying the same house, thus appearing to be contagious. I think Dr. Forchheimer agrees with me in that I do not believe that dentition ever caused any disease of this nature, although it occurs about the period of dentition.

Dr. ROTCH.—I do not admit that dentition has anything to do with the cause. To return to my former suggestion, can we not have a general term in place of the word aphthous, can we not, for instance, call it infectious stomatitis, until we get a proper term for the disease? This is what I have been accustomed to do in my endeavors to make the nomenclature of diseases of the mouth more clearly understood by students.

Dr. PUTNAM.—I think this is an excellent idea of Dr. Rotch's, and I move, subject to suggestion, that Dr. Forchheimer be appointed a committee to announce a nomenclature of diseases of the mouth, including such as can be put into definite classes. I think it a good plan to drop this word for no one knows what it means. Perhaps Dr. Forchheimer would like some one associated with him, and I would suggest that Dr. Rotch serve with Dr. Forchheimer on this committee. A motion was made and carried appointing Dr. Forchheimer and Dr. Rotch a committee to report on this subject at the next meeting.

Dr. FORCHHEIMER.—As to the suggestion of Dr. Putnam concerning a reflex cause of aphthæ, I would admit that such a thing may occur, as far as the investigations have gone, however, the reflex causes may be excluded. Kaposi and others have looked into the subject and find that there is something more than a change in the trophic ganglion of the chords, or if it is the facial nerve, a change in the ganglia there. I was astonished to find that in 1883 another party had worked out the thing as I had. I think there is some connection between digestion and aph-

thæ. There is something formed that passes through the liver undisturbed, passes into the circulatory system and affects the nervous system, thus indirectly. These products may be formed in the change from albumen to albumoses, or may be produced in the tissues themselves. What astonished me in working up the literature was, that the Frenchmen had worked out these things before the Germans. As to dropping out the word *aphthæ*, in the series of articles which will appear in book form, I have adhered to the word *aphthosa*. I have retained the term *stomatitis* and used the word *aphthosa* as an adjective, out of respect to Bonn. The history of the word goes back into the writing of Hippocrates. From him we have retained the term and many different things have been called *aphthæ*. If we understand what *aphthosa* means, there can be no difficulty in retaining the term, and we place ourselves in direct connection with all the nations, German, French, and others that use it. The English have a form they call *follicular*. The Germans use the term *aphthosus*. *Aphthæ* can be dropped, but I think *aphthosus* should be retained. As to the disseminative forms, it has occurred to me that they are badly developed cases of *stomatitis aphthosus*. As to Dr. Adams' remarks *stomatitis diphtheritica*, is extremely rare. I know many practitioners call anything occurring in the mouth *diphtheria*, including *stomatitis aphthosa*, which is not so. The application of remedies to the fauces the use of sprays, the use of very hot applications, all these may produce lesions in the mouth. But in addition to this *stomatitis* is an uncommon complication of *diphtheria*, and these forms rarely become *diphtheritic*. When an eruption occurs in the mouth in *diphtheria* it is usually *stomatitis aphthosa*, but it rarely becomes *diphtheritic*. I do not believe that the disease is contagious. The form that is the result of foot-and-mouth disease is not contagious. Three persons drinking infected milk will, as a rule, get *stomatitis aphthosa*, but those associating with them will not. The only possible way in which I can explain the occurrence of several cases in the same family is from the operation of the same causes; the children all take the same food and the same causes apply to and affect all. As to Dr. Koplik's remarks, Epstein's first work is more in the direction of ascribing the trouble to some anatomical condition, which predisposes these parts on account of attrition simultaneously with Epstein; I reached the same conclusion—that these forms were due to mechanical irritation. They

occur only where traumatism can occur. Bednar's aphthæ occur very rarely in this country. We sometimes see a similar form upon the hard palate, the result of badly constructed nipples, causing a large, flat ulcer. The pathology of this form which seems to be clearest is the same as Bednar's.

Dr. ROTCH.—Whether we change these terms or not it seems to me that the committee will be useful just the same, and we shall keep in accord with the leading minds of Europe.

FORCED RESPIRATION.

Answer to Article of Dr. J. O'Dwyer* on "An Improved Method of Performing Artificial Forced Respiration."

BY GEO. E. FELL, M.D., F.R.M.S.,

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President American Microscopical Society.

FORCED respiration in contra-distinction to artificial respiration is at last beginning to be noticed both on this and the other side of the Atlantic.† For many years instruments had been devised with which to perform it, but failure through improper apparatus, and erroneous views regarding the resisting power of the lungs and conditions associated with respiration upon man, resulted in the condemnation of what has proved to be one of the most valuable means of resuscitation ever introduced to the world. Decried as it was by the whole medical profession,‡ having been tried and found wanting; looked upon as dangerous to the delicate air vesicles, and erroneously considered as of no more value than the methods of artificial respiration in vogue, the decision of the medical world up to July, 1887, when I made my first operation, was that it was unnecessary, useless and unjustifiable.

* See ARCHIVES OF PEDIATRICS, January, 1892, page 30.

† See Reports Paris Academy of Medicine, June, 1891.

‡ Marshall Hall's Method in Asphyxia, says we must not use bellows or any forcing device.

When I read my first paper upon the subject before the International Congress, 1887, detailing its unquestionable value, the discussion really condemned my operation, because I had made tracheotomy to save the life of a human being, when the Sylvester method it was urged might have accomplished as much. Had the revelations presented by this first case been witnessed by any of the gentlemen who discussed it, although carefully detailed in my paper,* I have no doubt the paper would have been printed in the proceedings of the congress. However, I saved my second case, using forced respiration for fourteen-and-a-half hours before the patient could breathe for himself.

In the meantime I was made acquainted with the novel but untruthful fact that my apparatus was *identical* with that used in the physiological laboratory. Had it been so the second and third cases would surely have failed, as they could not have been carried through with the laboratory apparatus. In the latter case, an unusual and exceptional one, the forced respirations were kept up for twenty-four hours before the patient could be left to breathe for himself. Artificial respiration would have proved certainly a failure in all of these cases. Even Dr. O'Dwyer who has not had an opportunity† to read my publications upon forced respiration in the proceedings of the New York State Medical Association, has fallen into this error. He states that "Dr. Fell's method, which is identical with that practiced in the laboratories on lower animals, consists in forcing air into the lungs by means of a foot-bellows—the connection between the bellows and the lungs being effected by means of rubber tubing attached to a cannula in the trachea or to a mask applied over the mouth and nose." To both of these means he also adds "there are serious objections." These statements I must positively refute, as they will not withstand the result of practical operations upon man in many instances, as my experience teaches. But first,

* Published later in *Buffalo Medical and Surgical Journal*.

† I judge from his statements.

I desire again to emphasize the fact that my apparatus in all *its essential details* is *very different* from that used upon the lower animals in the laboratory.

That used in my laboratory* before I devised my forced respiration apparatus for use upon man, consisted of a large foot-bellows, a rubber tube to connect it with a large brass tracheotomy tube supplied with a valve which had to be turned by hand to let the air pass into the lungs, and turned in the opposite direction to let it pass out.

With this arrangement each time the valve was turned, for the inspiration as well as the expiration, the trachea was given a wrench. I have found that it makes a great difference whether you are wrenching the trachea of a dog or a living human being. I overcome this feature of the laboratory apparatus by making my tracheotomy tube and the valve which controlled the air column in separate parts, connecting them by flexible rubber tubing. This would permit the patient to move about without endangering the trachea. This may be noted as the first feature differing from the laboratory apparatus.

In the laboratory apparatus the trachea had to be ligated around the tube as Dr. O'Dwyer states, but *not so* in my apparatus. To prevent this I screw to the tracheal end of the tube a larger or smaller ring, according to size of the trachea, which fills up the trachea preventing an excess of air passing out by the side of the ring.

This is the second novel feature of difference from laboratory methods.

Again I made the connection between the flexible rubber tube and the tracheotomy tube so that it could be easily and quickly disconnected. This is an important feature, and constitutes the third feature of difference between my own and the laboratory methods.

The valve which controls the air also has some valuable features. 1st. With it, the air can pass into and out of the lungs at all times, except during the forcible inspira-

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tion. Fourth and fifth differences from that of the laboratory apparatus. 2d. The air from the bellows is constantly passing through the valve during expiration, thus allowing the air to immediately enter the lungs from the air-valve when the piston is pressed down without traversing the whole length of tube from bellows. Also by the removal of the thumb from the piston of valve the expiration takes place immediately without any counter air-current from the bellows. With this arrangement auto-respirations can be assisted instead of interfered with, a factor of importance in many cases I have met with.

This makes the sixth and seventh differences between my apparatus and that used in the laboratory.

In the construction of the bellows I used a diaphragm of rubber dam (now a double bellows without perishable rubber) which equalized and produced a steady, instead of an interrupted or jerky column of air, such as Prof. H. C. Wood provides in his so-called "cheaper apparatus," with common bellows. Here we have the eighth difference between my own and the laboratory apparatus.

If I wish to present still more features of difference, I might include the air heater which I also have practically used upon cases of resuscitation of human beings. The eight features of difference mentioned above, will, I trust, put a *quietus* upon the question of similarity between my own and the laboratory apparatus. What I have accomplished has resulted from *careful attention* to the details of *practical import* associated with an operation which holds human life in the balance, not by *slipshod* methods which have in the past relegated this operation to oblivion, and which methods some are now trying to revive. If the saving of eighteen human lives, the record of results with which my work must so far be credited, is not an argument in support of my statements what "under the stars" does or will give credence to human utterance? However, I have overlooked another similarity between the laboratory apparatus and my own, the face-mask. Of course, the face-mask everyone will admit who knows nothing about it, was used in the laboratories in the days of Galen. With-

out joking, however, this constitutes the ninth marked difference between the laboratory apparatus and my own, and yet Dr. O'Dwyer does, what appears to me, an injustice in speaking of the two as being identical. I desire to state that, notwithstanding an experience in laboratory vivisection work for eight years prior to my first operation of forced respiration upon man, it was not until this first operation that I was enabled to conceive its great value. All my experiments, the gradual unfolding through operations upon living human beings of the value of the face-mask, should give weight to my words above those resulting from *experimentation upon dogs*; the conditions are very different. All that experimentation *upon dogs* has revealed as to the value of forced respiration in saving life I had previously demonstrated upon living human beings; when I began my work it was not even known that it would save a dog's life. Now a few words with reference to the evolution of the face-mask. I had begun the operation of tracheotomy upon one of my patients, when my attention was called to the fact that he was dying, the dilatation of asphyxia taking place. I immediately placed the tube of the apparatus in his mouth, closed the lips about it, and compressed the nostrils; inspiration then being produced, I was pleased to find the purple deoxygenized blood in the tracheotomy incision change to a bright scarlet. I had many demonstrations of this character following, which gave me the idea of the face-mask. Having a rubber cup used for cupping purposes I fitted it to the face and saved several lives with it without tracheotomy before preparing the one I now use.

However, Dr. O'Dwyer states there are serious objections to both the face-mask and tracheotomy, and would intubate for everything in forced respiration. The majority of cases upon which I have operated have been cases of opium narcosis; cases which it is true offer the *widest* demonstrations of the advantage of forced respiration in the long-continued use of the method, and yet it must be borne in mind that the life of the patient is not out of danger until the poison is eliminated from the system.

Now I am quite certain that Dr. O'Dwyer or no other judicious physician would recommend a method which would prevent the imbibing of fluids, through which means we may most readily aid elimination of the poison. Intubation would certainly do this in preventing closure of the glottis, and therefore I have not used it; also, it is a fact that one of the difficulties we have to contend with in these cases is the danger of vomited fluids entering the larynx and obstructing respiration. I must contend that in such cases tracheotomy offers more hope for our patient than intubation, as there is no interference with the passage of fluids to the stomach. Experience has shown again that intubation will be seldom needed when the face-mask offers us as good results without any of the difficulties which must be necessarily met with in intubation. The objections Dr. O'Dwyer urges against the face-mask are not in many cases borne out in actual experience; views based upon it must be conceded as of more value than those of a semi-hypothetical nature. Up to the present time, so far as can be ascertained, I have probably had more operations of forced respiration upon man, than all the rest of the physicians of the world combined. What I may say upon this subject is based entirely upon this experience.

Dr. O'Dwyer states that "In forcing air through the mouth or nose of an insensible patient, the tongue, unless secured, is almost certain to cause obstruction, or the vocal chords may be forced together by the in-rushing air, and act as a valve as in paralysis of the abductor muscles, because there is no expansion of the glottis as in normal inspiration." This does not generally hold, I can safely state, from the observations I have made and now repeat tersely.

In my eleventh case, young woman, I used the face-mask for four hours; my fifteenth case, female, for seven hours; seventeenth case, female, two hours; case nineteen, old lady, two hours; case twenty-first, female, seven hours; case twenty-second, female, four hours; twenty-fourth case, male, five hours; twenty-fifth case,

female, two hours. In all these cases, for the time mentioned, which resulted in the majority of instances in saving the lives of my patients, there was absolutely no interference with the air passing directly to the lungs. Furthermore, the chest would heave and fall in many cases in the most natural manner. That such results could be obtained by the cheap apparatus mentioned in "The Year Book of Treatment," 1891, page 193, and lauded as the best, consisting of a face-mask, a few feet of rubber tubing, a pair of bellows, and two sizes of intubation tubes (ordinarily not required), I do not believe. With such an apparatus which it is stated could be used by "unskilled persons" I am quite certain I would have lost many of my patients. In the cases referred to, if too great pressure was produced, the œsophagus would expand and cause stomach inflation, but by careful inspirations for a time, followed by pressure on the abdomen, it would pass away without inconvenience.

What appears to me may be urged as facts of value in this connection are the following: The passage to the lungs under ordinary conditions of unconsciousness, except, and even sometimes in swallowing, is always open. The air forced into the lungs does not, as is generally believed, cause a closure of the glottis any more than the deep auto-inspiration of ordinary respiration. Exceptions may be taken to all rules of course.

If forced respiration by my method, use of face-mask, etc., be carefully conducted, the lungs may be as fully inflated as under deep auto-inspiration, and the respirations kept up for a period of time ranging from one to ten hours, according to size of individual and degree of obesity. Thin, spare patients appear to be better subjects than those of opposite build. In the few cases in which from continued work with complete paralysis, the tongue has fallen back and occluded the larynx, a ligature has been placed through it and the organ held forward. Usually extension of the neck will raise the glottis, but cannot always be relied upon; in such cases intubation would be of value. After the face-mask has failed in one or two

instances I have saved life by performing tracheotomy, which was called for through the cases being narcotized by opium, (*vide* previous remarks).

As to intubation, it may have its place in some cases of forced respiration, but to urge its value over the use of the face-mask when the latter has accomplished so much, is unwarranted.

In my earlier cases I was called to attend an infant eighteen days old, which had been given one grain of morphia through the mistake of an old and experienced homœopathic practitioner. I had not learned the use of the face-mask, and was compelled to make tracheotomy, by which forced respiration was kept up for some four hours. The face-mask would have worked admirably in a case of this kind, but only with a suitable apparatus on account of the short respirations in so young a babe. Through various steps in my investigations, I have been enabled to prove its great value; it will save many a life when intelligently applied where the methods of Marshall Hall, Sylvester, or other methods of artificial respiration will fail.

Clinical Lecture.

EMPHYEMA IN CHILDREN.*

BY L. EMMETT HOLT, M.D.,

Professor Diseases of Children New York Polyclinic.

Reported by HENRY E. TULEY, M.D., Senior Assistant Physician
New York Infant Asylum.

THE first patient I present you is a boy four-and-one-half years old. Four weeks before I first saw him, four-and-a-half months ago, pneumonia began, the consolidation involving the whole right lung. For ten days the

*Clinical Lecture delivered at Polyclinic, March 10, 1892.

temperature was high, ranging from 103° to 105° , then for two weeks from 101° to 103° . Latterly, there had been cachexia, free expectoration and considerable sweating. There was no family history of tuberculosis, and child was in fair surroundings. He had been seen by a number of physicians, and by one of the most eminent consultants of the city, who diagnosed tuberculosis and ordered him to the country.

At my first examination the left lung was found normal. Over the whole right lung, anteriorly and posteriorly, there was dulness, and flatness anteriorly from apex to nipple. Distant bronchial breathing over whole right lung, and feeble, fine, moist and cracking râles everywhere, except over the area where flatness was noted. Heart was slightly displaced to the left. A needle was introduced in axillary line with negative result; but a syringeful of pus was obtained when introduced near nipple.

After the first visit, for four days, temperature was 101° to 104° , and child was in critical condition. On fourth day an incision was made in anterior axillary line, under chloroform, and a drainage-tube inserted, three or four ounces of pus being evacuated. During the night five or six ounces of pus discharged in dressings.

The temperature did not rise above 100° after operation. Tube remained *in situ* about ten days, with considerable discharge of pus and shreds of fibrin. The wound healed in about ten days after removal of tube. His improvement since has been surprising, and you see to-day he shows no evidence of any serious illness.

Physical examination now shows the breathing to be a little rude anteriorly. Resonance fair all over lung. Measurement shows no difference in two sides of the chest. With the exception of the cicatrix, any signs of disease in the lung would only be noted after a careful examination.

The second case I present you is a boy four-and-one-half years old. He was admitted to the Babies' Hospital, about one month ago, with a history of a previous pneumonia for four weeks, the process at first being in the right upper lobe with gradual involvement of the whole right lung. When I first saw him in consultation, there was flatness over the whole right side of chest, very feeble respiratory murmur, and displacement of the heart. The attending physician had made six exploratory punctures

in search of pus, with a negative result. I punctured in about the only region not explored, which was at the apex of the lung in front, and found pus.

On admission to the hospital, an incision was made under the ordinary precautions in the next intercostal space below where pus had been located but none was found. The finger was introduced, and encountered adhesions above and below; the sac was punctured above, and about eight ounces of pus evacuated. Fully one pint was discharged during the night in the dressings. The temperature was not above 101° for four days; but after the fourth day there was hectic temperature rising every evening nearly to 104° . The drainage was fairly free at first, but the tube constantly became plugged with fibrin. The temperature showed that the drainage was not good. Resection of the rib was done on the tenth day, a portion of the sixth rib about one-and-one-half-inches long in the anterior axillary line being removed; a double drainage-tube was inserted. For two weeks subsequently, the temperature was lower, but occasionally rose to 101° . During the third week the temperature rose every day, once to 103° , and we were at a loss to know its cause.

Examination showed no pocket of pus, urine was negative, and wound seemed draining freely. Malaria was suspected, and eighteen grains of quinine administered every morning. The temperature was immediately controlled, and there has been no rise now for ten days. The tube was removed on the fourteenth day after rib resection. At present the sinus is closed, the surface of the wound being covered with a few granulations. The child is gaining rapidly in weight. There is normal pulmonary resonance over the left lung, tympanitic resonance over the right, and over this region where lung is adherent percussion note is flat. There is, as yet, almost no expansion of right side. The breathing is very rude, with no râles or bronchial respiration. Breathing over left side is very much exaggerated.

The third patient is a little girl, two years old. Has always been delicate. She had a very severe attack of bronchopneumonia over two months ago, almost the whole right lung being consolidated. There was high temperature for one week with a gradual fall to normal. On the nineteenth day after admission there were signs of fluid in the chest, and puncture showed pus. She had up to this time continued pale, cachectic, and greatly prostrated. An

incision was made and five or six ounces of pus evacuated. For ten days there was a slight elevation of temperature, but the discharge was free; the tube was then removed and sinus drained slowly.

You see this empyema developed with low temperature, the rise being after incision. Her condition continued very bad for two weeks after incision; she wasted, was cachectic, with feeble pulse, and in fact was, at one time, almost *in articulo mortis*. As there was still some discharge, a pocket of pus was suspected and a rib resection was done, a portion of the eighth rib behind being removed. There was severe shock, and she came near dying on the table. About one-half ounce of pus was evacuated. There was a slight discharge for ten days, when the tube was removed, and the flow ceased in about ten days more. There has been gradual improvement from that date, slight at first, but latterly very rapid. During the past five weeks she has gained five-and-one-half pounds in weight, and at this date, the wound has been soundly closed for three weeks.

There is now tympanitic resonance over the right chest, very rude breathing, but no râles, and no signs of active disease. Expansion improves every day and she is practically well.

These are the only two cases in which I have had to do a rib resection. The improvement in the patients after leaving the hospital is surprising, and it is sometimes, without previous history of case, difficult to locate the previous trouble.

Empyema is quite a common condition in childhood; fully nineteen out of twenty cases seen follow pneumonia. It is due to the pneumococcus which finds its way into the pleura, and sets up inflammation there. Other causes in children under three years are so rare that we can practically eliminate them. In adults tuberculosis is a common cause, but a very small percentage of cases in children are due to it.

In obtaining the history we can nearly always get that of an antecedent pneumonia. The child presents a cachectic appearance, is pale, and poorly nourished, with gradual or rapid loss in weight. There is nearly always

cough, and frequently expectoration, and night sweating. There is generally fever from 100° to 104° ; it may range only from 100° to 101° , which without a thermometer one might overlook, or there may be an absence of fever altogether.

The physical signs are few but very significant. There is *flatness* on percussion, which with children, almost never occurs in pneumonia, and is always suggestive of fluid, especially if it is found all over one side, as it is rare that pneumonia involves the whole of one lung. The displacement of the *apex beat of the heart*, is always suggestive of fluid. There is *absence of râles and friction-sounds* which are always found in resolving pneumonia. If râles are heard over all of the lung save a small area, lookout for sacculated empyema. *Bronchial breathing* is practically the rule in empyema, it being distant and feeble. If the symptoms are suggestive, and the physical signs obscure, *puncture*. The early diagnosis is so important that we should puncture, and repeat several times if at first not successful. Don't use too small a needle, and be careful not to pass the needle through the pus into the lung, which may readily be done. It is a perfectly harmless procedure if care is taken and attention paid to details. Cleanse the needle thoroughly and carefully wash chest, and hold the arm well up so as to get a good field. If necessary, give a few whiffs of chloroform; and it is so important to do it thoroughly, make as many as ten or twelve punctures if necessary to satisfy yourself as to the presence or absence of pus.

The diagnosis then is made by the physical signs given, flatness on percussion, displacement of the heart, absence of râles and friction-sounds, distant bronchial respiration and exploratory puncture.

It is undoubtedly possible that cases may get well without surgical treatment by absorption of the pus but this is so unlikely that we should never wait for it. There are cases on record, however, where the diagnosis has been confirmed by puncture, which have gone on to recovery by absorption without treatment.

Spontaneous recovery may occur from rupture into the lung and discharge of pus through a bronchial tube. A child may have a violent coughing spell, and in half a day expectorate six or eight ounces of pus. There is no mistaking this condition, but it is very rare.

Again, spontaneous recovery may occur by rupture of pus externally. The empyema almost invariably opens in front near the nipple.

You perhaps remember a case I presented the class two weeks ago, of extreme lateral curvature, in which there had been a spontaneous external opening in an empyema, from which there was a discharge of pus for five years before complete arrest. There was a difference of seven inches in the measurement of the two sides of the chest, with no expansion of the affected side perceptible.

What are the chances of cases getting well if not treated surgically?

In the statistics of Rilliet and Barthez, of thirty-three cases not treated surgically twenty-one died.

The methods of surgical treatment in vogue are *aspiration*, *simple incision* with drainage and incision with *rib resection* for the same purpose. Aspiration, I believe, should be relegated to oblivion; it only gives a possibility of a cure. Cases require almost invariably repeated aspirations, and cavities can never be evacuated completely. Often the needle is blocked by large masses of fibrin so that the pus cannot be removed. By waiting and aspirating again and again valuable time is wasted. I, at the present time, use aspiration in only one condition,—as a preliminary to the subsequent operation of incision. When there are present very urgent symptoms, and patient cannot stand operation, or you are not prepared to perform it at once, aspiration may be done and a few ounces of pus taken out;—enough to relieve the urgent dyspnoea temporarily, but not with the idea that you can thus cure the case. I was much surprised at a recent discussion of aspiration of empyema, to hear one of the best surgeons of the city advocate this procedure in children. It is a waste of time, has to be repeated every

four or five days, and the advantages claimed are more than offset by the disadvantages. This is conclusively shown by the following statistics of aspirated cases which I have recently collected:

Of one hundred and twenty-one cases treated by aspiration twenty-three were cured, six died, and ninety-two came to some other operation.

Simple incision with drainage is the easiest, most rapid, and most efficient method of cure. The dangers and disadvantages of the use of anæsthetics in this operation are considerable. I have known of one child and two adults who have died on the table while undergoing operation for empyema under anæsthesia. The danger is particularly great in old cases; that is, in cases in which pus has been present for some months; the patient struggles violently under the anæsthetic, the pus ruptures through the sac and into the lung, and the child suffocates.

Local anæsthesia in the majority of cases is all that is found necessary. Cocaine or ice may be used. I generally use the former, as I came near losing a patient myself under general anæsthesia. The amount of disturbance of the heart and lungs is great already from the presence of fluid, the displacement of the heart, and the twisting of the great vessels, without the added danger from chloroform or ether.

It is well to explore the field again by puncture, just before you operate to ascertain if pus is still there. The point of incision should not always be at the most dependent point; but if the chest is full, make your incision about the seventh or eighth space behind at angle of scapula, which, when the child is lying down will be the most dependent point, and will give the best drainage. If the tube is at lowest part of the chest the diaphragm rises as the cavity contracts, is approximated to the chest-wall and the tube may be thus occluded.

Briefly, the operation is as follows: Make your incision in the middle of the intercostal space; carefully dissect down; nick the pleura when it is reached; then with a grooved director and probe-pointed bistoury, make your

incision in it from one to one-and-one-half inches in length. With your finger introduced into the cavity break up adhesions, or it may be necessary to use a sound to reach those you cannot get at with your finger.

Now shall we let out all the pus at once or not?

My preference is to let but one-third or one-half escape, then put on dressings and allow the remainder to escape gradually into them through the tube, during the next twenty-four hours. Reaction may follow when all is let out, and a gradual expansion of lung is very desirable. The next question is that of washing out the pleural cavity.

Is it necessary? if so shall it be repeated?

In the vast majority of cases it is not necessary. It irritates the pleura when frequently repeated, increases the discharge, aggravates the original condition; and it is not free from danger, as death has been known to occur from simple irrigation of the pleural cavity. If employed nothing but boiled water should ever be used, and I think its use should be limited to fetid discharge as in gangrene of the lung. In ordinary empyema it is not called for.

Free incision with perfect drainage, asepsis, a clean wound, and nature does the rest.

Don't leave the tube in too long. It should be originally six or eight inches in length. At each dressing, which should at first be every day then every other day, withdraw the tube gradually, cutting off a half-an-inch at a time and you are generally able to get rid of it in from ten to fourteen days. If kept in longer it rarely serves any other purpose than to keep open the wound. An ordinary dressing is employed; a strip of iodoform-gauze underneath the safety-pin with which tube is transfixed to prevent its slipping in chest; some antiseptic gauze over it, a large mass of absorbent-cotton over all, with a bandage or binder confining it to the chest.

The dangers of incision are none. It is better than aspiration as already stated, and is rapid and safe. The trouble comes from delay in operating; the lung is coated

with a thick layer of fibrin which becomes organized and expansion is impossible ; if the operation is done early the fibrin is absorbed and expansion is rapid.

Rib resection in the vast majority of cases is not necessary. It is required if there is not perfect drainage after simple incision, which is indicated by a continued elevation of temperature. An incision is made down on a rib two-and-one-half inches long, the periosteum is peeled back with periosteum elevator, the rib resected with bone forceps. Freer drainage is obtained, as a double drainage-tube can be inserted through the larger opening. The rib is generally reformed if the periosteum is preserved, though there is always more recession of chest when rib has been resected than after a simple incision.

A CLINICAL LECTURE.

POINTS IN THE DIETETIC MANAGEMENT OF INFANTILE DIARRHŒA.

BY AUGUSTUS CAILLÉ, M.D.,

Professor of Children's Diseases N. Y. Post-Graduate Medical School.

SPEAKING in a broad sense, we may venture the statement that children suffering from some acute form of diarrhœal disease become sick either through (1) improper feeding or (2) improper food ; and thus the dietetic treatment is the most important factor in the management of a given case.

1. *Illustration.*—If a child takes its nourishment from a healthy breast and shows dyspeptic symptoms with diarrhœa the dietetic management is exceedingly simple : A total abstinence from the breast for a certain time and the allowance of farinaceous or sterilized water (tea) to allay thirst will, as a rule, be followed by the desired improvement, after which we allow the child to take its former and natural nourishment with restriction as to quantity and interval of feeding.

Should we fail to bring about the desired improvement we must look into the regimen of the mother and take into consideration the principal factors which influence the uniformity of composition of mothers' milk, viz.: nervous influence, quantity and quality of food of mother, exercise of mother, regularity of nursing; and if in addition we secure a quantitative analysis of the breast-milk as regards albumen and fat, we are then in a good position to advise and suggest treatment.

2. *Illustration.*—A child takes sick with some acute form of diarrhœa while receiving improper food. Under improper food I would class the breast-milk of a woman afflicted with cancer, tuberculosis, syphilis, or cachectic from any form of severe acute or chronic disease; and, 2d, improper bottle-food. Practically, the majority of bottle-fed children come under this heading and the dietetic management is similar to that of the group I; but our food restriction will usually extend over a longer period of time, and in the event of a favorable termination of the case we do not permit our patient to return to the former injurious food, on the contrary we now consider it to be our principal duty to suggest a proper diet. In this class of cases in city practice we should avoid milk for a short time in order to give rest to an irritated stomach. Country practitioners not infrequently order cows' milk to be continued, because they are reasonably sure of getting milk which is not in the slightest degree deteriorated; but in city practice, in the summer (unless we get the best of milk which has been sterilized in the country before transportation), we do well to withhold milk entirely for a time and administer only mucilaginous or farinaceous drinks, such as barley-water, egg white in water, gum arabic in water, lime-water, cold tea, toast water, burnt-flour soup, mutton broth, corn-starch pap, whiskey water, etc.

As soon as improvement has crowned our efforts, we must select for our patient either a healthy breast or a bottle-food which shall be easy of preparation and valuable to the economy of the child as a tissue builder.

Our choice of a bottle-food is limited to (1) ordinary cows' milk in proper dilution ; (2) canned milk ; (3) patent baby foods. Without wishing to detract from the alleged value of any baby food in the market I am willing to emphasize that we do not need them as a class. It is perfectly legitimate to invest capital in the manufacture of baby foods ; but as cows' milk can be handled in every well-regulated household so as to fit it for infants' use we need go no further than the milk-dealer for the basis of artificial infants' food.

The better qualities of canned milk are very useful in travelling with infants, and sterilized milk in pint and one-half pint bottles is now obtainable in most of our larger cities.

Let us now turn our attention to cows' milk, and let us see whether we can handle it so as to fit it for infants' use. Cows' milk is slightly acid and contains about three times as much caseine as human milk, thus we dilute it accordingly with water or barley or oatmeal water, and we furthermore add some sodium chloride and sugar, and perhaps a spoonful of lime-water. If our milk is sufficiently rich the addition of fat or cream is not necessary. In this manner we get a good and proper baby food resembling human milk in composition, but differing from it in one respect, in its not being sterile as human milk. We therefore take the last step in copying nature ; we steam the food to destroy all germs of fermentation and then we have it as sterile for all practical purposes as milk direct from the human breast.

A few words as to the rationale of milk sterilization. All of our food liquid or solid is perishable, and we associate with this process of organic decay the terms fermentation and putrefaction as representing that process in nature by which organic substances are split up into their elementary constituents, such change being usually accompanied by the formation of poisonous by-products—ptomaines, toxalbumens. In order to hinder a rapid decomposition of our food we make use of methods of preservation, and employ for that purpose in the laboratory, as well as in

the household, the high and low temperature respectively known as the freezing and boiling point of water.

Now one of the most important, and at the same time one of the most unstable articles of food which enters the household of the rich and poor is cows' milk; and as we know at the present time that spoilt milk is the chief factor in the causation of summer diarrhœa, we have naturally come to the conclusion that the ordinary methods of preserving milk in the household are faulty, especially as regards the manipulation of milk intended for infants' use, and thus the suggestions of the German chemist, Soxhlet (whose method of sterilizing milk in the household is well known in all civilized countries), have been most enthusiastically accepted and mark a distinct advance in the rational prophylaxis of acute gastro-intestinal disease. Since the introduction of Soxhlet's method to the American-bred profession by the writer, in 1888, numerous milk sterilizers have been launched upon the public the different forms of apparatus now obtainable in this country are all constructed on correct scientific principles, and no special designation need be made in favor of one or the other.

One point must be born in mind, however; there is no apparatus in the market which will make innocuous such milk as already contains the chemical products of decomposition—the ptomaines. The milk which we subject to the sterilizing process should be pure and fresh, otherwise we will fail in our object.

In exceptional cases in which the digestive apparatus is defective through long-continued disease and probably structural change, the assimilation of our home-made milk-food may fail. In such cases we administer with benefit to our little patients a predigested milk-food which is easily prepared in the household by means of the peptogenic milk powders obtainable everywhere in the shops. By its aid we convert caseine of cows' milk into an absorbable form which being readily assimilated builds up the wasted body of an infant until its vitality and digestive powers are again on par, whereupon the predigested

food may be discontinued and the sterilized and diluted milk again administered.

In the present state of our knowledge the formula for rational dietetics in children is exceedingly simple, and it is not likely that there will be much diversity of professional opinion on so important a subject in future. Wherever such positive knowledge is correctly applied we may hope to see good results, and if we fail in a certain proportion of cases it will be in the direction of the feeble children who will naturally succumb to the action of putrefactive poisons and infectious disease.

It is in this field as in others that the grand law of nature the survival of the fittest will continue to outrank human ingenuity.

Clinical Memoranda.

OBSERVATIONS ON TUBERCULOUS KNEE-JOINT DISEASE IN CHILDHOOD.

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IT is a well-established fact that the great majority of chronic joint affections in childhood are tuberculous in character, and that the bacillus coming from without is not primarily, or with rare exception only, deposited in the joint. Koenig in sixty-seven autopsies on individuals affected by tuberculosis of bones and joints, found in fifty-three instances older foci of disease which might be considered the seat of the original infection. The autopsies reported by Northrup, Bollinger, and others, have shown that this primary infection is in most instances of the bronchial or mesenteric glands where it may lie dormant in persons of apparently perfect health. Ziemssen in calling attention to the fact that tuberculous disease so often follows measles says, "the infection of measles has not excited tuberculosis, but has only made the latent

tuberculosis manifest." Krause has proved that it is possible in previously inoculated animals to produce local tuberculous disease by spraining joints.

It seems fair to assume then that the sequence of events in a tuberculous joint disease, may be somewhat as follows: By inheritance the patient may be in a vulnerable condition; whether or not inheritance has a more direct bearing than this we are at present unable to determine. The bacillus coming from without finds lodgment probably in the bronchial or other lymphatic glands and a state of latent tuberculosis is established. Later a congestion, the result of injury to a joint, forms a favorable nidus for the deposition and growth of the bacilli, and the resulting joint affection is thus a local manifestation of a disease of longer standing. While it is not probable that these inferences are strictly true in all cases, the theory is clinically correct, for it emphasizes the importance of general therapeutic, as well as local treatment, of nourishing food, and above all of open air and exercise, as opposed to long confinement in bed. It shows also why early excision of a diseased joint, as urged by those who exaggerate the local malignancy of the tuberculous processes in childhood, may not entirely remove the disease or its predisposition to recur. On the other hand, the presence of a painful joint with long-continued suppuration, from its depressing influence on the health of the patient may make an operation for the removal of the local affection imperative, although we may not hope to entirely eliminate all the foci of disease from the body. It is well known also that the age of the patient has a most important bearing on prognosis and treatment. It is not at all infrequent to see children suffering from several local manifestations of tuberculosis who are in good physical condition, while in the adult, disease of a single joint may call for early and radical operation.

It must therefore be borne in mind that these remarks refer to disease of childhood only. In knee-joint disease we know that the tuberculous process is at first usually confined to the epiphysis, femur or tibia, that its growth is

avored by the congestion of traumatism. During the first stage certain sympathetic changes take place in the joint itself tending to impair its usefulness, and later we may expect a breaking through into the joint with more or less diffuse tuberculous disease there, unless we are able to check the progress of the primary affection. If then we might accurately determine the position of the limited disease in the epiphysis, we might hope to remove it ; practically this is not often possible without the destruction of much bone on which the future growth of the limb depends.

We are therefore restricted to what may be termed symptomatic treatment :

To provide when possible the best environment for the patient.

To remove pain and the apprehension of pain.

To furnish an apparatus which will allow the patient unrestricted exercise in the open air.

To remedy and prevent deformity.

If pain is not relieved, temporary confinement in bed for rest extension and local treatment is indicated.

If observation shows that the disease is extra-articular it may be removed, abscesses may be aspirated and iodoform-emulsion injected.

The tension of acute articular inflammation may be relieved by free incisions. The distension of the knee-joint by pus or the pus-like product of tuberculous inflammation should not be permitted, because of the danger to the cartilage which rapidly disintegrates under these conditions, exposing the healthy bone to the invasion of disease. If the disease is progressive the joint may be freely opened and all tuberculous soft parts removed, including those in the bone itself, partial and complete excision being reserved as last resorts and as distinctly life-saving operations by which we sacrifice the usefulness of the limb to present necessity.

Under proper treatment radical excisions are rarely indicated. The record of 300 final results in knee-joint disease collected by Gibney, after efficient treatment, im-

proper treatment, and neglect, show that the death-rate immediate or remote is less than ten per cent. ; and even under these adverse circumstances that the ultimate condition of the joint as to usefulness and functional ability is surprisingly good. We are therefore encouraged to hope that early diagnosis and efficient treatment will greatly improve on these results. The plea for early excision, that we may thus entirely remove a malignant disease, is invalidated by the probable presence of the bacillus elsewhere in the body, or in other words, there may be a constitutional predisposition to disease which cannot be removed by any operation. Life is endangered rather by the violence of the local affection or from the effects of long-continued suppuration, than by the mere local tuberculosis *per se*.

Even the modern operation of partial excision presupposes a stiff leg and complete atrophy of all the muscles which should move the joint, thus diminishing the blood supply of the limb on which the growth of the bone depends, while complete excision subjects the patient to an amount of shortening, which in latter life may make the leg a useless appendage. It would seem, therefore, that on the latter ground alone excision of the joint, except as a necessity should be limited to late adolescence and adult life, when the whole question assumes quite another aspect.

The fact that early excisions are so often performed emphasizes the importance of special institutions for the treatment of chronic joint affections, where the natural history of the disease, its duration, complications and effects on the limb and life of the patient is known, and where facilities for its proper treatment are provided.

Perhaps the strongest argument of the general surgeon, who is more familiar with neglected or advanced cases, or with the acute phases of the disease which brings the child to the hospital than with final results, is that by excision of the joint we may remove local disease and deformity and obviate the necessity of mechanical support and after-treatment. This is not borne out by facts. Hoffa investigated 135 cases of knee-joint excision, and in thirty-three

per cent. found a recurrence of deformity, and in many local disease also, which accords perfectly with our experience here.

As the question of time and expense of apparatus is so often brought forward by those who would substitute excision for conservative treatment, it is well that we should know exactly how much time and how much expense is entailed upon the poor at this institution. As to time, a visit once in two or three weeks, for from one to three years, and an expense of from five to ten dollars a year for apparatus, which is furnished free of charge to those who are unable to pay.

It cannot be too strongly urged that knee-joint disease, properly treated, is not a painful or depressing affection. These children attend school and are more often endangered by the violence of their play, than precluded from exercise by pain or deformity. That the ultimate results of treatment are favored by early diagnosis is clear. What are the elements of early diagnosis of knee-joint disease in children?

First, chronicity: as children recover so quickly from any simple injury or disease the mere fact that a child has had something the matter with the knee for several weeks, is in itself a very suspicious symptom.

In the earliest stage then, possibly after an injury, we may expect slight pain at night after violent exercise, a little stiffness or limp sometimes noticed only in the morning. On examination, a slight limitation of motion particularly in extension, that is the ham strings are somewhat contracted, there may be a slight enlargement and a little increase in the temperature of the joint, tenderness on pressure often over the internal condyle and occasionally a subacute synovitis may be the prominent symptom.

The continued observation of joint affections in childhood and infancy impresses one with the importance of watchfulness. Any chronic affection no matter how slight, which shows a tendency to deformity or to limitation of normal motion, demands protection, no matter what the ultimate diagnosis may be.

By treatment in the earliest stage we may hope to check the progress of the disease ; to entirely prevent deformity ; to preserve motion ; to prevent and modify the sequelæ of the disease, abscess, long-continued suppuration, and its effects. The essentials of proper treatment are :

1. To overcome deformity and place the limb in a straight line. The growth is so rapid in early childhood, especially under the stimulus of an inflammatory process that permanent distortion may quickly follow on continued faulty position.

2. To fix the joint by plaster-of-Paris, extension or otherwise.

3. To apply a brace which shall entirely prevent the functional use of the limb and insure protection from traumatism.

By protection and fixation we guard against the liability to active or passive congestion which favors the increase of local disease, and while we may not always expect to confine it to the epiphysis we may hope to check the rapidity of its progress until the sympathetic inflammation in the joint has shut off a healthy portion by connective tissue, so that the subsequent tuberculous process may be limited in extent. In this way we explain the nearly perfect motion which may ultimately be preserved even after involvement and suppuration of the joint itself.

The apparatus which in out-patient practice at least, best fulfils the necessary conditions is what is known as the Thomas knee-brace. It consists of a padded ring surrounding the upper part of the thigh on which the tuberosity of the ischium rests, and the lateral rods terminating in a foot-piece three inches below the foot, on which the patient walks, with the aid of a high shoe or patten on the sound side, we are thus able to dispense with crutches which are very unsatisfactory for children who cannot be closely watched. Complications are then treated as they arise in the manner already indicated.

In the more advanced cases, when deformity is well marked, the patients are admitted to the hospital and the

position is corrected and abscesses or suppurating sinuses treated as a preliminary measure. Protective treatment is then continued until there is no longer evidence of disease, and until there is no further tendency to recurrence of deformity. Time is of no particular importance compared with ultimate results, which we hope and expect to attain.

Several clinical cases may now be presented to illustrate some of the points touched upon.

I.—Early diagnosis of knee-joint disease in infancy ; persistent treatment and cure.

A well-developed infant of six months was brought to the hospital on October 8, 1890, with a history of stiffness of the left knee of one week's duration. There was no known cause, no pain or discomfort. The watchful mother had noticed that the child did not extend the leg, and wished to have the symptom explained. Examination showed the joint absolutely normal in appearance; no heat; no increase in size; no atrophy of the leg; there was slight limitation of flexion, and extension was impossible beyond 160 degrees; within this limit motion was painless. As the child did not walk, various short braces with and without extension were applied with the aim of overcoming the flexion, but were inefficient. Two months later a very light Thomas brace with extension was applied which quickly overcame the deformity. Complete rest and protection was kept up for one year, when the brace was removed tentatively at night, and finally discarded.

Now at the age of two years the condition of the joint is normal in every way and motion is unrestricted. Measurements, however, show the affected limb to be three-quarters of an inch longer than its fellow, which proves that there was an irritative process about the epiphysis of the femur, and confirms the original diagnosis.

II.—Early diagnosis of knee-joint disease confirmed by another tuberculous focus in the spine.

A child of three years was brought to the hospital on August 14, 1891, with an indefinite history of slight pain in the knee on fatigue. Examination showed a slight thickening of capsule; slight creaking in the joint when moved, and limitation of extension at 175°. No enlargement; no heat; no pain on motion; three-quarters of an inch atrophy

of the thigh. Thomas brace, with extension, was applied. On November 27, an irregularity of the spine was discovered in the lumbar region with all the accompanying symptoms of Pott's disease; the symptoms in the knee-joint being quiescent; no pain or spasm or local indication of disease. It seems probable that here we are dealing with two primary foci of disease, that in the knee having been first apparent, rather than with a transference from the affected knee to the spine.

III.—*Early diagnosis of knee-joint disease confirmed by neglect.*

An infant of eleven months was brought to the hospital on April 11, 1890, with a history of slight pain and stiffness in the right knee of two weeks' duration, following injury. Examination showed slight limitation of motion and pain on complete extension of the leg, a little enlargement of the knee and apparent tenderness on pressure over the internal condyle. There were several hard nodules in the subcutaneous tissue of the right leg. Plaster bandages were applied for several months. It may be noted here that plaster bandages or any simple support of this nature is unsatisfactory and inefficient even in infancy. In August the child had convulsions followed by right hemiplegia, and was transferred to a neurological clinic. In November the knee was said to be well. In January, 1891, she was again brought to the hospital the hemiplegia having entirely disappeared. The leg was fixed at an angle of 135° ; there was marked enlargement and thickening of the knee, with pain on attempted motion. A Thomas brace, with extension, was applied combined with firm bandaging and compression of the knee which rapidly brought the leg down to a straight line. This appliance has been continued for one year. The legs are now equal in length; the knees equal in size; a slight thickening of the tissue below the patella being the only sign of disease. The subcutaneous tuberculous nodules have disappeared, leaving depressed scars. The brace will be worn for several months, it will then be removed at night. If no symptoms follow the voluntary motion at the knee the child will be allowed to walk about a little in the morning and at night. Finally, all support will be removed under careful and continued observation.

IV.—*Tuberculous knee disease with constitutional symptoms; arthrectomy; recurrence under neglect; subsidence of disease under protection.*

An Italian child eighteen months old was brought to the hospital in August, 1890. The knee-joint was uniformly swollen, infiltrated and fluctuating, and the child was evidently suffering from severe constitutional disturbance. As the age limit would not permit her admission to this institution she was sent to the New York Hospital. Dr. Bull made two long lateral incisions on either side of the joint and all the soft parts were thoroughly removed. The disease was tuberculous in character. The wounds healed readily, and she was discharged some months later, the joint being freely movable in all directions, very loose and flail-like from the destruction of ligaments and other supporting structures. The parents failed to report for several months, and when the child was again seen there was recurrence of the deformity. The leg was flexed at about 160° , and could not be extended to a straight line; two sinuses had formed on either side of the joint.

A Thomas knee-brace, with extension, quickly brought the leg into good position; under protection the sinuses closed and the disease ceased to progress. After one year a simple lateral support was applied and the child allowed to walk on the leg. Now there is no evidence of disease or deformity. The leg can be voluntarily extended and flexed through an arc of 20° , the joint has become firm. The diseased leg is one inch longer than its fellow, and the prospect of a useful limb with no subsequent shortening seems very good.

V.—Radical excision; recurrence of disease and deformity; subsequent osteotomy; great shortening.

The patient's knee-joint was excised at the age of four, two years later he came to this hospital presenting the following condition: His leg was fixed in a position of flexion, with marked outward bowing and inward rotation of the tibia, several sinuses were still open and discharging. He was admitted to the hospital, osteotomies were performed and the leg brought to a straight line. Under treatment the sinuses closed, and he was discharged wearing a brace. In spite of persistent treatment deformity tends to recur, and at the age of eight years he has an actual shortening of four inches in the length of the leg. This disproportion in length will be progressive, and in later years may make the leg useless as a supporting member. This case is presented only to illustrate what we may expect from early and complete excision in regard to cessation of growth, and to show that this operation, as in this case

performed by a skillful surgeon, may not remove the disease or prevent subsequent deformity.

VI.—*Partial excision; recurrence of disease; progressive deformity.*

A child of seven was brought to the hospital February 25, 1892, with the following history: Disease of the knee-joint at the age of three; no treatment; progressive deformity. One-and-a-half years ago he was admitted to a hospital and the operation of excision performed; the wounds closed and he was discharged four months later. In two months there was local recurrence, for which he was readmitted. Again discharged cured, and again admitted on three subsequent occasions at short intervals, for recurrence. He now presents the following condition: Firm union; numerous scars of sinuses and operation wounds; one inch actual shortening of the leg; marked knock-knee; paralysis of the anterior muscles of the leg and foot, with contraction of the tendo-Achillis. This case shows the importance of protective treatment after excision. It is probable that these recurrences, and certainly the knock-knee, might have been prevented by the use of a proper brace while the leg was in a vulnerable condition. The paralysis is probably due to division of the external popliteal nerve during the operation. The child will be admitted to the hospital where an osteotomy will be performed for the relief of the knock-knee, the foot brought up to a right angle and supported. Protective treatment will then be continued until there is no further tendency to recurrence of deformity.

VII.—*The ordinary course of knee-joint disease when untreated.*

A boy of nine is brought here on crutches. History: An injury to the right knee two years ago followed by pain, stiffness and deformity. Treatment: Anti-rheumatic remedies, liniments, etc. Progressive enlargement of the joint, and finally suppuration. Three months in bed in a general hospital where the abscesses were opened. An attack of measles, and one month at North Brother's Island; progressive deformity and emaciation; removal; crutches, and exercise in the open air, followed by improvement in general condition. Examination: Leg fixed at an angle of 135° ; general enlargement of the right knee, with tenderness on pressure; patella immovable; two closed sinuses on the outer and one on the inner aspect discharging; outward and backward displacement of the tibia; the

diseased femur is one inch longer than its fellow. The patient will be admitted to the hospital ; the position will, as far as possible, be corrected. A close-fitting plaster bandage and a Thomas brace will then be applied, and by persistent treatment the patient may be assured a useful limb.

In conclusion, it may be stated that scientific conservative treatment can be easily and effectually carried out, even among the poorest classes. One has only to compare the almost uniformly good results thus attained with the rigid, short, atrophied and often deformed limbs seen in later years as the result of early excision, to decide that this operation, performed on young children simply because the disease is tuberculous in character, or on the plea that apparatus may thus be dispensed with, is unjustifiable. The principles of conservative treatment in brief are : To rapidly and completely overcome deformity ; to hold the limb at perfect rest, protected from traumatism, and the limb in a straight line until a proper cure is established ; complications to be treated on modern surgical principles. Under these conditions the occasion for excision or amputation must be rare indeed.

A SIMPLE METHOD OF REMOVING ADENOID VEGETATIONS IN CHILDREN, WITH A DESCRIPTION OF A NEW CURETTE.

BY LEONARD A. DESSAR, M.D.,

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THE brevity of this paper will not permit of my going into details regarding the numerous instruments employed for the removal of adenoid growths. There seems to be a great difference of opinion amongst laryngologists as to the efficacy and adaptability of the numerous appliances in use. Of the many forceps, curettes, spoons, etc., in the catalogue of the makers there is scarcely one that has not

its advocates, and is not recommended as being the best for the removal of the growths.

It is possible that the constant use of certain instruments induces a scepticism towards the many new devices and improvements now presented to the profession. Certain it is that no one instrument is applicable to all cases, nor can one judge of the advantage of one over the other without a proper and thorough test of all in use. The object of this short paper is to give my views and experiences, after having thoroughly tried each of the many instruments in use, as well as to give in detail every step of the procedure which I employ in operating on children. This method I regard as the simplest and safest for both patient and operator.

In all cases where facial expression, mouth breathing, and postrhinoscopic, or digital examination reveals the presence of adenoid tissue, an operation is indicated. To determine the method of operation and the instrument to be used, the age of the patient, the size of the fauces, the consent of the parents to an operation, are all factors to be considered.

In dispensary classes, where a large number of cases are operated upon daily, and where the patient is compelled to return home, and pass out of the observation of the operator, one has to be careful to avoid hæmorrhage following the operation, as well as the danger resulting from infection, colds, improper care and food. My experience, both in private practice and in clinics teaches me that adenoids in children are best removed in a series of operations without an anæsthetic, rather than in a single one with an anæsthesia. I have had made for me three sizes of Lowenberg forceps, and I find, in children, I seldom have to resort to other than these. My method of operating is as follows : The child is placed either in a chair or on the lap of the mother or an assistant, and during the first *séance* a tongue depressor is used to insure a careful inspection of the fauces, the size of which, together with the age of the patient, will determine the size of the forceps to be employed. If the child is very young, the

head and arms are held firmly by the mother, and the feet of the child placed between the operator, the forceps are then quickly introduced into the vault of the pharynx, pushed up as high as possible, the blades widely separated, then closed. It is not wise to jerk the instrument out after engaging the tissues between the blades, but the shaft of the instrument should be slowly forced downward, tearing the adenoids away gently. A good plan is to raise the shaft of the forceps to the upper teeth, using the teeth as a fulcrum. Invariably from two to three granular hypertrophies are removed, very little hæmorrhage takes place, and very little pain is experienced. If too much resistance is encountered in operating, we know too much tissue has been grasped; the forceps blades should then be separated and the adenoid tissue again grasped. The danger of using too much force is the liability of tearing away healthy connective tissue, causing profuse hæmorrhage. In cases where improper forceps have been used, I have seen the vomer and soft palate caught, a portion of the velum or septum being torn off or injured. I must here caution against the use of improper or poorly-constructed instruments, as more harm may be caused by their use than the operation does good. In many cases children are very refractory and enter the room crying, and it would seem almost impossible to operate without administering an anæsthetic. These cases are placed on the lap of a skilful assistant, the limbs firmly held between those of the assistant or operator, with his arms placed around the body of the child, the mouth either being forced open with a tongue depressor, or in the act of crying, the mouth-gag is quickly placed between the teeth, the index finger of the operator is used to steady the head, and at the same time depress the tongue and act as a guide in introducing the forceps, which are quickly introduced, removing two or three pieces of adenoid tissue, the gag then slipped quickly from between the jaws, and in a very few seconds the first operation is over, the child suffering more from fright than from actual pain. When asked as to whether there was any pain, the answer almost

invariably is, no. After one or two sittings, children become more courageous, and in almost every case, except in very young children, the third or fourth manipulation is gone through without either the aid of an assistant, or the use of a mouth-gag. As soon as children become aware that there is little or no pain connected with the operation, they submit without much trouble. Older children are seated, open their mouths, and in less time than it takes to make a pharyngeal application a number of adenoids are removed.

My experience has taught me that in the treatment of children an effort should be made to gain their confidence, and that more can be accomplished by the proper moral treatment and by kindness than by strict measures and punishment. Colleagues visiting my clinics have often been amused by the way children enter the room, seat



themselves, open their mouths, and permit the introduction of the forceps. They have remarked to me that they consider this method of removing adenoid tissue far simpler than to go through all the different preparations for an operation under an anæsthetic ; very little time being consumed in operating, which is a very important factor in the management of large classes.

These sittings are repeated until digital examination reveals a smooth surface on the vault of the pharynx, often, however, there are masses of adenoid tissue on the lateral walls and in Rosenmueller's fossæ, which cannot be removed with the Lowenberg forceps. I am accustomed to following the use of the forceps by a second and final operation, namely, that of scraping the lateral walls and Rosenmueller's fossæ with a lateral cutting curette, devised by myself. Messrs. Reynders have made for me

two oval curettes, each with a cutting edge, the one to cut from right to left, the other from left to right. The advantage of having one edge blunted is the absence of danger in introducing the instrument so that it can be pushed up to the vault close to the lateral wall without injuring the parts. With one sweep of the instrument the tissue left in the vault as well as on the opposite lateral walls is removed. The curette is introduced in the same manner as the forceps, and under the same rules. I usually accomplish this operation in one sitting, and the digital examination invariably reveals an entire removal of the adenoids.

The advantages gained in operating on children in the foregoing manner are :

1. The absence of disagreeable symptoms following the use of an anæsthetic.
2. The absence of profuse hæmorrhage.
3. The absence of pain after the operation, and of bronchitis brought on by blood entering the bronchial tubes, as so often happens after anæsthesia.
4. Short time consumed in operating.
5. The consent of parents objecting to an anæsthetic.

INFANTILE PARALYSIS: REPORT OF A CASE.

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AND

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THE following case is reported simply to illustrate the difficulty of an early diagnosis in a typical case of infantile paralysis :

February 29, 1892.—The patient, a female, twenty-two months old, is the second of three children of healthy parents. The other children are healthy, and the mother

has had no miscarriages. During the latter part of last June, when the child was fifteen months old, the weather being very warm, the child was suddenly attacked with fever, was very restless and irritable, disliked to be handled in any way, and cried when the right lower extremity was touched. The family physician, a man of experience and skill, diagnosticated rheumatism, and administered the appropriate remedies. The fever rapidly subsided, and at the end of a week the child appeared to be quite well again, but refused to walk. Three months later, four months ago, the child was seen in consultation by a physician, than whom no one is more learned or has had a more extended experience in the diseases of children. Rachitis was diagnosticated, and cod-liver oil with phosphorus was prescribed, together with a rich animal diet; and this has been faithfully followed out. The general health of the child has been good, but she has continued to walk unsteadily and stumbles and falls easily. Recently the mother has noticed the right calf to be smaller than the other.

Examination.—The right foot is held more flexed and abducted than that of the opposite side; it is scarcely as warm to the touch; the calf is half an inch less in circumference; there is no swelling or tenderness anywhere; the inner portion of the calf has a somewhat flabby feel; passive motion at the knee, ankle, and tarsus is in no degree restricted, and the foot can be flexed and abducted beyond the normal; in voluntary movement the foot can be extended and abducted, but to a less degree and with less strength than can the other foot; in taking a step with this foot the heel is presented first to the floor, and she does not spring from the toe when about to take the next step.

These facts are sufficient to make certain the diagnosis of infantile spinal paralysis, and however interesting might be the electrical examination it is not possible in the work of the general practitioner, and of little value unless made by an expert. Rickets, whatever may have been the condition four months ago, may now be excluded from the absence of large and tender epiphyses and crooked limbs. Chronic joint disease, which is often suspected because of the early pain on manipulation and the subsequent limping, is excluded, because there is

neither a distended synovial sac (tubercular synovitis) nor any involuntary restriction of normal motion (tubercular osteitis). The treatment consists in the application of an apparatus which will prevent stretching of the paralyzed muscle, and of percussion, rubbing, and roasting of the affected part.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Budin: Nursing-Bottle. (*Journ. de Méd. de Paris*, 1891, iii., 483.)

In a rubber cork, which may be used with any bottle, two tubes are placed, bound together; the larger allows the passage of the milk, the other, very small, permits the entrance of air; a nipple of rubber and a flat washer of bone complete the instrument. The tube intended for the passage of air must be very small, in order that the milk may not escape by it when the bottle is reversed, and also that the milk shall not flow too rapidly through the larger tube.

Toledano: Re-vaccination in the Communal Schools during the Year 1891. (*Journ. de Méd. de Paris*, 1891, iii., 520.)

Vaccine taken directly from the heifer was employed as usual. Precautions were taken to wash the instrument in an antiseptic solution after each vaccination. Three inoculations were made upon the left arm. The number of children re-vaccinated, boys and girls, was 195, of which 45 were successful, a percentage of 23.52. In 1890 the percentage was 23.72; in 1889, 10.37; in 1888, 27 per cent. Unlike the preceding years in which the children had been re-vaccinated, at the end of their sixth year, in 1891, the vaccination was employed only (with a few exceptions) among pupils over ten years of age. The limit of age for re-vaccination should be fixed at not over six years. Statistics show that the successes obtained among children from six to ten years of age are as numerous, and sometimes even more numerous, than among those of ten years and over.

BOYS.

10 to 12 years,	17 successes,	70 re-vaccinations,	24 per cent.
12 " 14 "	10 "	48 "	20 " "
Adults	0 "	3 "	0
<hr/>			
Total	27 successes,	121 re-vaccinations,	22 per cent.

GIRLS.

8 to 10 years,	3 successes,	17 re-vaccinations,	17 per cent.
10 " 12 "	5 "	30 "	16 " "
12 " 14 "	10 "	27 "	37 " "
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Total	18 successes,	74 re-vaccinations,	24.32 per cent.

BOYS AND GIRLS.

8 to 10 years,	3 successes,	17 re-vaccinations,	24 per cent.
10 " 12 "	22 "	100 "	22 " "
12 " 14 "	20 "	75 "	26 " "
Adults	0 "	3 "	0
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Total	45 successes,	195 re-vaccinations,	23.52 per cent.

In examining these tables it is seen that the number of successes is greater among the girls (24 per cent. against 22 per cent.). This fact has been noted before in preceding years. A child aged ten-and-a-half years, successfully re-vaccinated in 1887, has been again vaccinated, and with success, in 1891. The immunity in his case has not exceeded four years. Another, aged eleven-and-a-half years; this immunity has lasted not more than two years. Re-vaccinated with success in 1889, he has been vaccinated with equal success in 1891. Finally, two children, one of ten years, the other of twelve, who had been re-vaccinated with success in July, 1890, have been vaccinated with complete success *nine months after*. We know that in a great number of children the duration of the immunity from vaccination does not exceed six years, and we know, on the other hand, that in certain exceptional cases this duration may be less than six years—may not even exceed one year. The age of six years seems to be the very latest which should be adopted for obligatory re-vaccination. Dr. Ollivier in a report of 30,000 re-vaccinations in the schools of the Seine, among children of ten years and over, gives the proportion of successes as 15.25 per cent., and says: "It is the best proof that one can give of the usefulness and legitimacy of re-vaccination at this age." Then, since from six to ten years the proportion of successes is almost the same, let us re-vaccinate at these earlier years.

Barbillion : Some General Considerations on the So-called Fever of Growth. (*Mal. de l'Enf.*, Paris, 1892, x., 1.)

The fever of growth does not exist as a morbid entity.

Growth does not cause fever any more than does pregnancy, the establishment of puberty, or senile decay.

The facts which have been grouped under the head of fever of growth are of varied causes, some of febrile states more or less clearly characterized (ephemeral fevers, fevers due to overwork, etc.), the others are slight degrees of acute osteo-myelitis. Their relations proceed from secondary characteristics, such as pain in the epiphysis and the increase in height. The pains in the epiphysis may be observed in young subjects in all febrile states. The notable increase in height may show itself equally in the course of any of the maladies of childhood, or of adolescence, be these maladies acute or chronic.

There is no ground to establish on this basis, a morbid group which could only be constituted by the artificial reunion of dissimilar cases.

Czerny : Observations on the Sleep in Childhood under Physiological Conditions. (*Jahrb. f. Kinderheilk.* Leipsig, 1891, xxxiii., 1.)

The depth of the physiological sleep: The connection of the depth of the sleep with the giving off of heat; respiration and pulse during physiological sleep. The observations were made upon infants and young children from one day to six years of age. The depth of sleep was measured by the number of milliampères of a current of electricity necessary to awaken the child. Reference must be made to the original article for details of the many experiments, diagrams, etc.

Fourriere : A Cause in the Pathology of the Arrest of Growth. (*Journ. de Méd. de Paris*, 1892, January 4.)

To the two recognized causes of arrest of growth, poverty, want and rachitis, should be added dyspepsia combined with dilatation of the stomach.

"The arrest of growth occurring among those suffering from dyspepsia with dilatation, probably from insufficient assimilation, constitutes a disease curable by means addressed to the treatment of the dilatation of the stomach, notably by massage of the stomach." M. Fourrière reports six cases.

Concerning the Obligatory Declaration of Contagious Diseases. (*Journ. de Méd. de Paris*, 1891, iii., 480.)

In a discussion upon a paragraph in a new law to regulate the practice of medicine, making obligatory the medical

declaration of epidemic diseases, the *Société Méd de l'Elysée*, Paris, referred the question to a commission of their own members. The proposed law had been voted by the Chamber of Deputies, but had not yet been discussed before the Senate.

The commission of the Society reported unanimously: 1st. The physician should not be required, himself, to make the declaration of epidemic diseases. 2d. If this declaration be required of other persons, this article should be in a sanitary law, not in a law upon the practice of medicine.

Villejeau and de Beurmann: The Chlorhydrate of Quinine for Subcutaneous Injections. (*Journ. de Méd. de Paris*, 1891, iii., 469.)

The bichlorhydrate is the most soluble of the salts of quinine. Its injection subcutaneously causes but an insignificant amount of pain, and no accidents either local or general follow its use.

The formula recommended is:—

Bichlorhydrate of quinine, 5 grammes.

Distilled water, q. s. to make 10 cubic centimetres.

(One cubic centimetre represents exactly 50 centigrammes of the bichlorhydrate.)

Dujardin-Beaumetz: New Instructions on the Precautions to be taken against Diphtheria. (*Gaz. Méd. de Paris*, 1891, viii., 503.)

Diphtheria is a disease eminently contagious. The germs of the disease are contained in the false membranes and in the saliva. It is transmitted chiefly by means of objects soiled by the products of the expectoration. These objects when not disinfected keep their power of infection for years. If the patient cannot receive in his home the necessary care, if he cannot be isolated, and particularly if several persons are occupying the same rooms, he should be removed to a special hospital.

It is of the greatest importance that materials expectorated or vomited, as well as the objects soiled by them, should be immediately disinfected. Disinfection shall be carried out by means of solutions of sulphate of copper. The police shall supply packages of sulphate of copper gratuitously. During the illness the sweepings from the floor of the room shall be removed each day and burned. Before the sweeping, sawdust wet in a solution of copper shall be distributed about the floor.

Dubousquet-Laborderie: 1. On the Treatment of Gaucher in Relation to Diphtheritic Paralysis. 2. On the Contagion of Animal Diphtheria to Man. (*Journ. de Méd. de Paris*, 1891, iii., 510.)

Since 1884, Gaucher has treated or seen in consultation eighty-five cases of diphtheria. Among these he has seen but once a case of paralysis. The author, since 1884, has taken care of 127 cases of diphtheria, among which he observed only three cases of paralysis. All three cases were light. These 212 cases are grouped without distinction, but among the number, several have been diphtheria of very severe type. This showing seems to militate in favor of the efficiency of the treatment advocated by Dr. Gaucher—a treatment which arrests on the spot the rapid development of the microbes, and prevents the toxic products from being carried to the nervous centers.

Since the work of the commission appointed by the Academy of Medicine at the beginning of the century, to study in Cologne the contagiousness of the diphtheria of fowls for man, many reports have come to confirm the conclusions of the commission. Klebs records himself for the contagion. But this idea of contagion assumes for premises the identity of the nature of the diphtheria of human kind and of animals, while the bacteriologists have not generally ratified this, for the reason that the microbes do not resemble each other. The researches of the laboratories can hardly weaken the clinical fact in the matter, however. Loeffler has stated that cultures of bacilli from diphtheritic pigeons inoculated upon other pigeons, communicated to them the disease which became promptly general, while the same cultures produced in chickens only small lenticular ulcerations at the point inoculated, without any general infection. From this he concluded that the diphtheria of pigeons and that of chickens were not identical. Some observations tend to show that what is called the quinsy of animals may be equally contagious: Two children assist at the removal of the hide of a horse dead of quinsy; both children die of diphtheria, of which there was no other case in the neighborhood. An adult man removes the hide from a donkey which had died of quinsy, and dies himself of diphtheria. No other case of diphtheria in the region. In another instance, a large number of fowls died of diphtheria, several of which were devoured by pigs. One of the pigs having died of quinsy, its owner pierces the trachea in the presence of a little girl of five years of age. This child succumbs to

diphtheria, her sister is attacked also, but recovers. The place where this family lived was thirty kilometers from the nearest settlement, and no communication, direct or indirect, had taken place for a long time. A similar affection had never been noted in the place.

II.—MEDICINE.

A Discussion on Diphtheria. (*British Medical Journal*, September 19, 1891.)

In this discussion at the last meeting of the British Medical Association, Dr. Russell drew attention to the action of steam when introduced into contaminated sewers or cesspools, in causing a spread of the disease. The germ of diphtheria is closely associated in its life-history with the presence of warmth, moisture and absence of light.

Evidence is presented which seems to show that the introduction of waste steam into disused cesspools was followed by an epidemic of diphtheria which ceased when the steam was turned in another direction. In another instance the introduction of hot water into sewers was at once followed by an outbreak of diphtheria. This would seem to prove that hot water or steam may cause activity in germs which otherwise might remain dormant. It is also probable that hot water and steam infected with human excreta may be an active source of contagion. The author believes that the most extreme care should be observed, not only in the household plumbing, but in the mechanical construction of drains and sewers; cesspools should be entirely prohibited; hot water infected with excreta should be conveyed away with the utmost care; steam from such a source should be excluded from all apartments.

Mr. Butterfield said that in his experience in rural-urban districts diphtheria was rarely connected with sewers, but was more influenced by collections of manure and other filth, by dampness of houses and by personal infection.

Dr. Parsons believed that the disease was rarely spread by sewers.

Surgeon-General Moore said that in India, where the disease is quite common, it could not be attributed to sewers, or water, for there are no sewers and the water is drawn from wells of immense depth. Neither can it be attributed to birds.

Dr. Thresh said that in his experience diphtheria had almost invariably been associated with some filth nuisance. He described epidemics probably connected in their origin with the importation of London manure, drinking water polluted with animal matter, and with the inhalation of drain or sewer air.

Mr. Nunn said that manure mixed with the refuse of slaughter-houses or poultry or fish shops was more likely to be a cause of diphtheria than ordinary manure.

Dr. Russell said that manure from cities was kept more in bulk and was, thus, more liable to be associated with diphtheria than other manure. He objected to calling manure a cause of diphtheria any more than of mushrooms, but without filth there would be no more diphtheria than mushrooms without manure.

Dr. Groves said that while diphtheria was usually associated with filth conditions, many cases developed without any such relationship.

Mr. Steele referred to the fact that these various conditions were associated with the disease only when the diphtheria germ had been introduced, and that they acted simply as a medium for their propagation.

Dr. Mumby and Dr. Parkinson cited cases in which diphtheria had undoubtedly developed through the use of drinking water polluted with animal excreta.

Muskett: Rickets in Australia. (*Australasian Medical Gazette*, July 15, 1891.)

Rickets has been considered a disease of great rarity in Australia. The author, however, has found it to be comparatively common, though as a rule of mild type. According to his description there is nothing in the symptoms especially peculiar. The chief point of interest is the fact that this disease is frequently found by one who is watching for it, and who appreciates its symptoms in a locality where it was supposed not to exist. When the conditions are favorable the disease is sure to appear.

Guye: Aproxia and Headache in School Children. (*Practitioner*, September, 1891.)

This is a contribution to work already done by the author on the same subject. In certain diseases of the nose and naso-pharynx disturbance of the cerebral functions are often observed. In 1887 the author proposed the name of aproxia for one of the principal symptoms of this disturbance, that is the inability to fix the attention

on any abstract subject. With this condition goes feebleness of memory and tendency to headache. Sight and hearing are also affected in some cases. Numerous authors are quoted, which seems to show that medical opinion is on the way to agreement with regard to the principal aspects of the question. Two cases are reported as being typical.

The first patient was a child of seven years. He had enlarged tonsils, was a complete mouth-breather and had a stupid face. Hearing was normal, but, although he had been at school for a year, he knew but three letters. The tonsils were removed and treatment applied to the nasal stenosis. The mental condition at once began to improve and was very decided.

The second patient was a girl of fifteen years, a mouth-breather, who had been subject to almost constant headache for two years. She was decidedly dull and backward in her studies. A week after removal of the pharyngeal tonsil the headache had disappeared and did not return. The mental condition was markedly improved. The theory in such cases is that the abnormal growths interfere with cerebral circulation.

The following conclusions are drawn :

1. No child should be admitted to school without a medical certificate as to his bodily fitness.
2. There should be medical school inspectors.
3. So long as medical school inspectors are wanting, teachers should be impressed with the importance of giving attention to mouth-breathing, especially in children who are backward in mental development, and with their duty of warning parents of such children to seek competent medical advice.

Carpenter: Jaundice in Children Accompanied by Temporary Enlargement of the Liver.) *The Lancet*, September 2, 1891.)

Enlargement of the liver is not generally regarded as of common occurrence in cases of simple jaundice, and in many of the text-books either no reference is made to its existence, or it is expressly stated that such enlargement is the exception. The cases reported are of some interest as showing a condition of liver which in all probability is of more common occurrence in cases of simple jaundice than has been generally recognized. In all the cases there was every reason to believe that the diagnosis of simple or catarrhal jaundice was correct.

— Six cases are reported in detail in the original article.

They were all of the same kind; jaundice appearing in previously healthy children, lasting for some weeks, and then, as far as could be ascertained, passing off, and in all physical examination of the liver revealing enlargement of the organ more or less marked. In only a few cases had the enlargement entirely disappeared at the time the patient was lost sight of. These cases throw no light on the causation of the jaundice. In four out of the six reported the trouble may have extended from the stomach. Neither is it apparent why in such cases as these the liver should be enlarged. But they clearly show that enlargement of the liver—well marked, though temporary—does occur in cases of this little-understood malady, simple jaundice.

Culver, T. M.: Diphtheria. (*Med. Free Press*, 1891, ix., 211.)

The patient should be completely isolated, the room maintained at a temperature of 70°, and kept moist with steam. Bowels kept open and chlorate of potash water given as a drink.

Internally, R	Hydrarg. bichlor.	. . . . .	gr. j.
	Ess. pepsin	. . . . .	ss.
	Elix. simpl., q.s. ad.	. . . . .	℥jv.
M. S.	Teaspoonful every two hours.		
Locally, R	Papoid	. . . . .	℥j.
	Sal. lister	. . . . .	℥ij.
M. S.	Blow x 4 rs. in throat every two hours.		

Out of a record of forty cases treated as above, thirty-five recovered. In two cases the larynx was so seriously involved that intubation was done. Of these cases, one recovered and the other died of heart failure.

Buckley, E. W.: Diphtheria. (*N. W. Lancet*, 1891, xi., 374.)

The preventive treatment of diphtheria is a very important subject, and it is reasonable to suppose that antiseptic washes used daily in the throats of those exposed to the disease will often prevent an attack. Complete isolation in a room having good ventilation should be insisted upon. The room, furniture, all soiled clothes, privies, drains, and utensils should be disinfected.

For the swelling of the glands of the neck, flax-seed poultices should be applied and changed every two hours. Spray the nose and throat every half-hour, or as often as possible without exhausting the patient, with a 1-4000 solution of bichloride of mercury, and after each spraying

administer one to two teaspoonfuls of the following: Potas. chlorat., ℥vj. ℥ij.; tr. ferri chlor., ℥ijss.; glycerini, ℥vj.; aquæ, ℥jv. Steam spray with five to ten drops of spirits of turpentine every hour. Whiskey is given according to indications, as much as an ounce every hour or oftener. For a tonic an elixir of iron, strychnine and quinine, and if the urine shows the presence of albumen, a diuretic of bitartrate of potash and gin; for suppression of urine, cupping and digitalis poultices. When the larynx is involved and there is danger of suffocation, either tracheotomy or intubation is indicated.

Walton and Carter: On the Etiology of Epilepsy, with Special Reference to the Connection between Epilepsy and Infantile Convulsions. (*Boston Med. and Surg. Jour.*, 1891, cxxv., 485.)

These conclusions are drawn from a very careful analysis of seventy successive cases of pure epilepsy in hospital and private practice with reference to the question of previous infantile convulsions, the opportunity being also taken to find out whether the brothers and sisters have been subject to them.

(1.) Epilepsy may begin in infancy and become continuous.

(2.) Where infantile convulsions have ceased for a sufficient time to remove the case from the class mentioned under conclusion 1., the child is no more likely to become an epileptic than any other individual.

Van Zandt, I. L.: Bowel Troubles of Children. (*Med. and Surg. Rep.*, 1891, lxx., 524.)

Observation has led me to divide the ordinary bowel troubles of children into three classes according to the character of the discharges:

1st. Those composed largely of blood and mucus.

2d. Those composed of a green or greenish material frequently associated with shreds of coagulated milk. This class will also embrace those cases in which the matter is passed yellow and becomes green afterwards. Green actions are generally almost odorless.

3d. Those with very offensive smelling actions of various colors, shades, and consistences.

In the first class, castor oil and laudanum are to be chiefly relied upon. I give most cases a prescription something like this:

R	Ol. ricini	3j.
	Tr. opii	gtt. x.
	Ol. anisi	gtt. ij.
	Pulv. acacia	q s.
	Syr. simplic, ad.	3j.
M.	S. Teaspoonful every three or more hours.	

This for a child one year old. Add ol. terebinth. if there is a tendency to the formation of gas; pepsin or papoid if undigested food is passing; bismuth if the actions are particularly offensive to the smell; hyposulphite of soda when the associated fæcal matter is green. In some cases which were stubborn and disposed to become chronic, I have had marked improvement follow the use of bichloride of mercury in 1-240 grain doses, repeated every three or four hours, with the oil and laudanum mixture, or with the opiate alone.

In the second class of cases, the most happy effect has resulted from the use of hyposulphite of soda.

In the third and most numerous class of cases, the best results were obtained from the use of the following prescription :

R	Pulv. opii	gr. j.
	Hydrarg. chlor. mitis	gr. ij.
	Cretæ prep.	scr. j.
	Bism. subnit.	3j.
	Sacchari alb.	scr. ij.
	Ol. anisi	gtt. jv.
M.	Div. in part xij. Sig. One every three or four hours.	

In all of these classes, rise of temperature must be combated on general principles. Special attention should be paid to diet, studying the peculiarities of each case and adapting thereto its proper diet, for all cases do not require the same.

Dabney, W. C.: *The Cardiac Complications of Diphtheria.* (*Virg. Med. Month.*, 1891, xviii., 521.)

The cardiac complications of diphtheria usually occur in one of three forms:

1. A rapid and feeble pulse, often irregular in force and rhythm.

2. A feeble pulse, which becomes progressively slower till the beats number less than forty sometimes less than thirty to the minute.

3. A sudden failure of the heart when all other alarming symptoms have disappeared.

This does not include those cases in which endocarditis occurs in connection with diphtheria.

That a *rapid* and feeble pulse is of serious, if not of unfavorable significance is universally acknowledged; but it is far less ominous than a *slow* and feeble pulse. I do not recall a single instance in which recovery occurred when the pulse had fallen as low as forty to the minute; but as I am away from my records I may be mistaken about the exact figures; certain I am, however, that of all the cardiac complications occurring in connection with diphtheria, except that in which the heart failure is immediately fatal, a slow pulse is the most serious.

Absolute quiet—confinement to bed and the avoidance of all excitement—is of the first importance even in mild cases, both as a prophylactic and remedial measure. The remedial treatment has been entirely unsatisfactory in those cases where the pulse become slow. Strychnia, atropia, brandy, ammonia, ether, and the other cardiac stimulants and tonics, I have tried without the slightest benefit that I could perceive. Recovery would sometimes occur under any treatment, in the milder cases, and death invariably occurred in spite of all treatment, in the severer ones.

The *treatment of the disease*—not the cardiac complications especially—which has seemed to me to give the best results, has been the free use of brandy, muriated tincture of iron, and bichloride of mercury. The pharynx is thoroughly sprayed every hour or two with a solution of menthol and boracic acid in alcohol and water, and then the patient is given the muriated tincture of iron and corrosive sublimate in glycerine. A glycerine solution is used in order that it may stick to the pharynx as it passes over it, and the patient is not allowed to take any food or water for half-an-hour afterwards, lest the antiseptic substance be removed from the throat.

- Maxson, A.S.: Chronic Infantile Gastro-Entero-Colitis. (*Med. and Surg. Rep.*, 1891, lxx., 696.)

One case is reported. The individual was an infant born one month prematurely. At the time of birth it weighed three pounds and six ounces, and appeared like a miniature grandmother with shriveled skin drawn over its tiny bones, and a very large head and abdomen as compared with the balance of its body.

With great care in dieting the child passed four-and-a-half years, scarcely a month, however, elapsing without an exacerbation culminating in vomiting and purging of food and mucus, followed by a subacute inflammation of its stomach and bowels. These attacks occurred in spite

of the use of almost every kind of food and drug. At last a remedy was found which terminated this condition from the beginning of its use. This remedy was *powdered myrrh*, given in divided doses of from nine to twelve grains a day, either in capsules or mucilage of acacia with glycerine and liquorice.

Leon, A. M.: Latent Nephritis, with Suppression of Urine in Children. (*Med. and Surg. Rep.*, 1891, lxx., 801.)

The following general conclusions are presented, based upon an analysis of eleven cases, one case being reported in detail: 1. Latent nephritis, with suppression of urine, is a rare affection in childhood, not so in after life. 2. It occurs usually as a complication of some zymotic disease, chiefly scarlatina. 3. In these cases of scarlet fever it appears usually, from the end of the second to the end of the third week. 4. It is sometimes impossible to foresee the nephritis—such symptoms as somnolence alternating with restlessness, slow pulse, vomiting, diarrhoea, headache, and anæmia should always direct attention to the kidneys. But rarely these signs do not occur until after the suppression has set in. 5. Contrary to the rule in kidney disease in children, œdema must not be looked for in some cases, either before or after the anuria develops. 6. It is known that anuria may exist with complete euphonia for several hours, perhaps for days. 7. No particular pathological variety of nephritis occurs in these latent cases. 8. The prognosis is bad—about three-fourths of the cases die.

Waugh, W. F.: Nasal Diphtheria. (*Times and Register*, 1891, xxiii., 460.)

Peroxide of hydrogen in nasal diphtheria is simply the ideal remedy, penetrating farther and doing its work more thoroughly, while it is not apt to injure the delicate structures as does the nitrate of silver. Turpentine and others are useful.

In the diphtheritic epistaxis, a solution of chromic acid injected into the nostrils is the best treatment.

Allyn, H. B.: Paralysis following Measles. (*Med. News*, 1891, lix., 617.)

A boy, thirteen months old, developed measles of moderate severity about May 13 or 14, 1890. This was followed by a catarrhal pneumonia, and when convalescent from the latter, on May 30 he became paralyzed on the left side. He was in a condition of partial stupor and was turned partly toward the right side. The right eye-

lid could not be opened voluntarily. The pupils were contracted. The left arm and leg were placid and motionless. The left foot was rotated outward and rested on its external border; the toe was pointed and the heel elevated. There was anæsthesia in the affected side. When the features were wrinkled the left side of the face remained motionless. There was slight elevation of temperature; the pulse was irregular in rhythm; the breathing was Cheyne-Stokes in character, but not noisy.

By the first of June, some contracture of the left fingers was noted, with beginning return of power. From this time on, power slowly returned in arm and leg, but the contractures persisted and the face continued paralyzed. At the present writing (November, 1891,) the child shows considerable improvement, most marked in the facial palsy. There is increased power in both arm and leg, and absence of contractures. The nutrition of the child is in excellent condition, but it has an insatiable appetite, and its mental condition is not encouraging. Speech is much affected, the child being very slow in acquiring words, and articulation being poor.

Solis-Cohen, S.: Diphtheria. (*Times and Register*, 1891, xxiii., 459.)

His treatment is as follows: Free stimulation, using for this purpose some form of alcohol; hourly inhalations of a five-per-cent. solution of carbolic acid; both the local and internal use of the tincture of chloride of iron; and the local and internal use of peroxide of hydrogen.

A gargle prepared as follows has been found useful: Take \mathfrak{Z} ij of chlorate of potash, dissolve in hot water and set aside. Then to \mathfrak{Z} vj of clarified honey, add, teaspoonful by teaspoonful, shaking well, compound tincture of cinchona, $\mathfrak{f}\mathfrak{Z}$ ij, and ammoniated tincture of guaiacum, $\mathfrak{f}\mathfrak{Z}$ ij. To this solution add gradually the chlorate of potash which has been set aside, shaking the mixture thoroughly, and to this add water q.s. ad \mathfrak{Z} vj. Every half-hour, or hour, or two hours the patient should gargle or bathe the throat with a teaspoonful of this solution. Every two hours let him swallow a half teaspoonful or a teaspoonful.

Pitt, Newton: Hypertrophy of Pylorus. (*Lancet*, 1891, ii., 931.)

Dr. Pitt showed to the Pathological Society of London, a specimen of hypertrophy of the pylorus in an infant seven weeks old. The child was well till three weeks

and-a-half before its death, when it commenced to vomit; and it had constipation. This was relieved for a time, but in spite of the most careful dieting, the vomiting returned and continued until its death. At the inspection the stomach was empty, but it retained its shape owing to the density and hypertrophy of its wall. The pylorus formed a mass one inch long and $\frac{5}{12}$ -inch thick, formed of hypertrophied muscle. The duodenum was bent sharply on the pylorus. The bile duct and the intestinal canal were otherwise normal. The hypertrophy of the gastric wall indicated that there had been some partial obstruction at the pylorus, but no cause beyond the flexure could be discovered. It was most improbable that this flexure was of any material importance, and the explanation of the case was therefore obscure.

Robertson: Posticus Paralysis in Infants. (*Lancet*, 1891, ii., 936.)

Dr. Robertson read before the Northumberland and Durham Medical Society, a paper on a condition of childhood which he thus named. The symptoms included prolonged and difficult inspiration, sometimes even cyanosis, with drawing in of ribs during inspiration. Marked pharyngitis was present. The symptoms were removed by repeated intubation and treatment of the pharyngeal affection. He regarded the symptoms as being due to bilateral impairment of the postici muscles.

Burton, Fanning: Icterus Neonatorum and Hæmaturia. (*British Med. Jour.*, 1891, ii., 946.)

An infant was brought to the Jenny Lind Infirmary for Sick Children, with the following story: The mother was attended in her confinement by a midwife, who stated that the child was quite well until three days old, when it became jaundiced, and began to pass blood with its water. On the fourth day the jaundice was intense, and while examining the baby I observed the expulsion of a small clot from the meatus urinarius followed by a stream of apparently pure blood; this fluid contained blood-corpuscles in various stages of disintegration and a minute amount of urea. Some grey powder was ordered, and on the sixth day the jaundice and hæmaturia simultaneously disappeared. The child is now a month old and in perfect health.

The liability of jaundiced patients to hæmorrhage is well known, and the association of purpura and of fatal bleeding from the umbilicus with icterus neonatorum has

been recorded ; the occurrence, however, of hæmaturia I have not found mentioned in any form of jaundice.

If we assume that icterus neonatorum is due to destruction of the infant's surplus blood-cells—with liberation of their pigment, which is converted into bilirubin—we should expect this condition of plethora to increase the hæmorrhagic tendency of the jaundice.

Neale, Richard: A Second Attack of Varicella after an Interval of Ten Days. (*Lancet*, 1891, ii., 1163.)

In the month of October I attended a family for chicken-pox, one of whom, a boy aged five years and-a-half, had all the symptoms of the complaint, numerous vesicles and considerable drowsiness, the attack running its usual course. Ten days after the disappearance of the acute symptoms, and when on the point of being allowed out, a profuse crop of vesicles appeared, which were far more numerous than on the first occasion, and the child again went through all the stages of the original attack, the constitutional disturbance being but slight.

Sadler, M. T.: Pericardial Effusion in an Infant. (*British Med. Jour.*, 1891, ii., 1095.)

The patient was a child five months old, whose birth had been artificially hastened at the eighth month on account of the mother having a severe attack of puerperal convulsions.

The child was never ill until October 22, 1891, when it received a slight kick on the left temple. The child screamed at first and had a restless night. The next morning it had a "fit" and two days later a second one, when the doctor saw it for the first time. It was pale, with a subnormal temperature; no perceptible pulse at the wrist; shallow breathing at the rate of sixty per minute, which had only been noticed that morning. Half-an-hour later the child had another seizure—hardly a "fit"—and died immediately.

Autopsy.—The surface of the brain was rather redder and softer than usual; but there was no effusion of blood, lymph or serum in any part, and the membranes looked healthy. In the chest the pericardium was tensely distended, containing one or two ounces of clear serum, but free from thickening or lymph deposit. The left lung was collapsed and hidden behind the pericardium, the right lung only partially inflated; no disease in the lungs or bronchial glands. In the abdomen the mesenteric glands were numerous, large and prominent, rather hard, but not caseous. The other organs were healthy.

III.—SURGERY.

Morton, C. A.: The Pathology of Tuberculous Meningitis with Reference to its Treatment by Tapping the Subarachnoid Space of the Spinal Cord. (*Brit. Med. Journ.*, 1891, ii., 840.)

These observations are based upon an analysis of fourteen cases of meningitis, their symptoms and pathological changes. The first considerations are the pathological effects of the increased intraventricular effusion, and the potency or otherwise of the communication between the fourth ventricle and the subarachnoid space. We must consider whether the softening is due to the pressure of excessive intraventricular fluid, or to inflammatory changes in the brain tissue. In all the cases of tuberculous meningitis which I have examined there has not been the slightest increase in vascularity in the softened tissue, which seems to me to show that inflammatory changes are not sufficiently marked in themselves to cause the softening, but that the pressure of the excessive fluid has much to do with it. In the chronic condition of excess of fluid—chronic hydrocephalus—it is true we have expansion and thinning rather than softening; but the gradual effect of the pressure in these cases may explain the difference, just as we have impaired mental power rather than coma.

If, then, the excess of fluid causes softening around, one would expect tapping the subarachnoid space to relieve the symptoms, supposing the ventricle still to communicate with it. I have again and again tried to find out the condition of the openings in the pia mater closing on the fourth ventricle, but invariably I have found it so torn in removal of the brain that my observations were of no value. Dr. Gee says: "I have several times examined the cerebro-spinal opening *in situ*, and have always found the membrane about it perfectly natural."

Although the relation between the softening and coma is such as to faintly encourage us, the nature of some of the more serious symptoms would not lead us to hope that they are merely due to compression, and that by diminishing the intraventricular pressure we could relieve them. What symptoms can be relieved by it, only the practice of the operation can show; that out of four cases operated on in the Middlesex Hospital, in one there should have been contraction of the unduly dilated pupils, and in another slight improvement in the general condition, is encouraging when we remember that drainage was not maintained in all the cases. The operation does no

harm, and as the patient is already comatose no anæsthetic is required.

But in any efforts we may make to remove the more serious symptoms of tuberculous meningitis by draining the intraventricular fluid, we must remember it is nearly always only part of general tuberculosis, which may, and probably will, prove fatal in other ways ; though if in this rapidly fatal meningitis we can prolong life, it may be some time longer before the general tuberculosis does its deadly work.

Glasgow, W. C.: **A Toy Balloon in the Trachea; Removal.** (*N. Y. Med. Journ.*, 1891, liv., 460.)

The patient, a colored child, eight years old, was seen for the first time, April 22, 1891. It was stated that two hours previous to this time the child had swallowed a toy balloon, that she had had several severe choking spells, but that in the interval her breathing was normal. When brought to the clinic there seemed to be nothing the matter with her. Her breathing was perfectly quiet and normal ; there was no cough ; her voice was clear, and there seemed to be no interference with respiration. Suddenly, however, without any apparent cause, she began to struggle as if for air. She became quickly cyanotic, her cry was toneless, and there was frothing at the mouth. An examination of the chest showed a whistling râle over the left bronchus, with weakening of respiratory murmur. She was then chloroformed and a low tracheotomy done, but nothing could be detected even by a sound passed into the trachea. On the fifth day she had several coughing spells, with symptoms of strangulation, and during one of these attacks, a red substance was seen presenting at the tracheal wound. This was caught with a forceps, and although but gentle traction was used, the red rubber came away from its attachments, leaving the wooden tube in the trachea. This was forced upward through the glottis and removed through the mouth. It was too large to pass through the tracheal opening. The next day surgical emphysema was seen over the whole anterior part of the chest. The left lung gave numerous mucous râles, with a distinct full respiratory murmur. The wooden part of the balloon measured an inch and three-sixteenths in length, and five-sixteenths of an inch in diameter.

Cheyne, Watson : A Case of Depressed Fracture on the Left Side of the Skull, with Symptoms ; Trephining ; Recovery. (*Lancet*, 1891, ii., 813.)

F. V., a boy aged four years, was brought to the hospital on August 23, 1888. Three days previously he fell from a balcony fifteen feet high, on to a stone floor. When picked up he was unconscious and severely bruised about the left side of the head, and there was a lacerated wound above the left eyebrow. He regained consciousness in about seven minutes, complained of severe pain in the head and soon became very sick. The sickness and vomiting continued until the day before admission, and was accompanied by restlessness, fever and pain in the head. On the morning of admission he seemed duller, and there was twitching of the eyes and hands. The boy seemed dull and stupid. The right eye was widely open, and the left upper lid slightly drooping. The right pupil was dilated and reacted imperfectly to light ; the left was normal in size and reaction. There were no signs of facial or other paralysis. While he was in the out-patient room distinct twitching came on in the left side of the body ; the face, hand and arm being more affected than the leg. At intervals this spread to the right arm and leg. This condition continued until the operation (two-and-a-half hours later), the twitching at times being very severe, and during the whole of this time the boy was quite unconscious.

On examination there was found a depressed fracture of the frontal bone, just above the outer side of the left orbital process, from which a fissure ran vertically upwards for an inch-and-a-half. Trephining was done and the depressed bone elevated or removed. After the operation the boy slept well and was quite conscious on awaking. There was no recurrence of the twitching, but the left arm and leg were paralyzed as regards motion. This paralysis passed off entirely in a few days, and the boy made a rapid recovery.

Harris, T. A. : Spina Bifida. (*Med. News*, 1891, lix., 484.)

The patient was about five days old, and the operation was done on July 23, 1891. In the lumbar region was a prominence about the size of a hulled walnut, crowned by a thin membrane. The body of the prominent mass consisted of integument, and was slightly pedunculated. The child was in vigorous health, without any paralysis of the lower extremities.

A knife was passed around the base of the tumor, cutting through the integument, and a silken cord was tied around it, drawing it very tight and burying it in the cut that had been made in the integument. This effectually shut off all circulation in the tumor, and cut off all communication with the spinal canal. The top of the tumor was freely scarified, and in four or five days another tight ligature was applied. In about ten days the entire mass fell off, leaving a sore spot about as large as a nickle, which had entirely healed in two weeks. Only one (the last lumbar) vertebra was involved. The child made a good recovery.

Dunn, John: Adenoids of the Naso-Pharynx in Children. Their Effects and Treatment. (*Virg. Med. Month.*, 1891, xviii., 437.)

Their effects on the nose and nasal cavity are to cause or assist in producing an annoying and more or less constant discharge from the nostrils; ulcerations, so that the turbinate and septum may even grow together; an inflamed condition around the entrance into the nostrils; a retardation in the development of the nose as a whole, which, in the majority of the cases can be seen in the shape of the outer nose.

They may prevent the orbit from developing properly, and as a result, be the cause of far-sightedness and of astigmatism. These vegetations are often also associated with phlyctenular keratitis, phlyctenular conjunctivitis, catarrhal conjunctivitis, marginal blepharitis, and eczema of the lids.

In many cases they are the cause of headache, and of "running ears." When these adenoids have existed for a certain length of time in the post-nasal space, there supervenes sooner or later, middle ear complications, which impair to some extent, the power of hearing; and as a rule, this impairment is progressive in nature.

That the growths in question are oftentimes an assistant cause to the production of many of the inflammatory conditions of the lungs must be considered as true. True asthma has been said to be sometimes dependent upon these growths. I have never seen a case of true asthma from this cause. It may be added that consideration of the question makes one believe that not a few of the intestinal troubles of children are directly due to the presence in the intestinal tract of this non-pharyngeal secretion, the trouble being produced either by the germs brought

down in the secretion, or by chemical disintegration of the secretion, or to disorders in the digestive processes caused by the presence of excess of these discharges.

The one treatment to be recommended for these diseased adenoids is removal, and the removal of the adenoids behind the naso-pharynx is the one proper treatment for all the active troubles resultant from their presence. Chloroform is often necessary, a condition of seminaresis is all that is needed, and it is to be preferred to complete narcosis, inasmuch as the work can be done without much danger of the child drawing any of the blood from the wound into the larynx. Some form of post-nasal forceps or snare should be used. The hæmorrhage, except in the case of "bleeders," is seldom troublesome, nor is there need of any after-application to the wounded surfaces, which heal, as a rule, rapidly.

Wolff, Bernard: Intubation of the Larynx for Diphtheritic Stenosis. (*Virg. Med. Monthly*, 1891, xviii., 42.) 5

The details of sixteen cases are given, of which six, or 37.5 per cent. recovered.

Huffaker, L.: Tracheotomy for a Melon Seed in the Trachea. (*Med. News*, 1891, lix., 659.)

The patient was a boy about three years old. He made a good recovery.

Burrell, Herbert L.: Abscesses in Pott's Disease. (*Med. News*, 1891, lix., 675.)

The following conclusions are warranted:—

1. That efficient mechanical support of the spine is the prime factor in the treatment of caries of the spine associated with an abscess.

2. That under an expectant plan of treatment the abscess will, in many cases, disappear.

3. That the indication for operative interference is a steady or rapid decline in the patient's general condition.

4. That the operation should consist in thorough evacuation of the abscess, and the establishment of drainage from as near the seat of the disease as is practicable.

Mules: Thyrotomy for Papillomata of the Larynx. (*Brit. Med. Journ.*, 1891, ii., 1314.)

Dr. Mules related before the Manchester Medical Society, the particulars of a case of laryngeal obstruction in a child aged four years, in which, after a preliminary tracheotomy, a diagnosis of multiple papillomata was made.

Considering it impossible to remove the growths by the intra-laryngeal operation, he performed thyrotomy and removed twenty-five separate growths, which had extended to the first tracheal ring. The wound was closed by one permanent suture, and removed on the third day. The child made a rapid and uninterrupted recovery in ten days.

Spicer, Holmes: Orbital Hæmorrhage in Young Children. (*Brit. Med. Journ.*, 1891, ii., 1313.)

These hæmorrhages occurred beneath the periosteum, in the course of infantile scurvy, a disease generally known as scurvy rickets. The subjects were hand-reared infants, generally between six and eighteen months of age, who had been brought up mostly on "infant foods." After a period of ill-health, spontaneous hæmorrhage came on beneath the periosteum in various parts of the body, sometimes, but not always, during the course of an attack of rickets. In the orbit the hæmorrhage occurred in two forms, either as a line of blood staining at the orbital margin, or as a large effusion producing displacement of the eye and distention of the upper lid; the form which the hæmorrhage assumed was due to the anatomical disposition of parts in the orbit. The hæmorrhage subsided rapidly at first, but did not disappear entirely; the eye was left prominent for many months. The treatment was essentially that of scurvy; in addition to the ordinary food, juice of fresh meat, a little fruit or vegetable, cod-liver oil, or cream should be given. The slighter cases recovered rapidly; the more serious ones were slow in progress and often fatal.

Beale, G. B.: Fatal Rupture of an Ovarian Cyst in an Infant. (*Brit. Med. Journ.*, 1891, ii., 1255.)

The infant was seen for the first time on October 23d, when it had a temperature of 101°, and the abdomen was swollen and hard. The temperature gradually rose to 103°, and obstinate vomiting set in; the abdomen getting harder and more and more distended, until the child died on October 27th. The autopsy showed no morbid change in Peyer's patches, but a good deal of purulent fluid in the peritoneal cavity; a deposit of caseous lymph over the right side of the liver, but none on the bowels. On passing a finger down into the pelvis pus welled up, and upon removing the uterus and appendages, cysts were found in both ovaries the size of a filbert; that in the left was ruptured on removing, the walls being very thin; on the right

side the cyst wall was tough and translucent, and attached to it were the remains of a ruptured cyst with a small quantity of blood and caseous *débris*. The spleen was normal; the heart healthy and filled with decolorized clot; the lungs showed hypostatic congestion. The peritonitis appears to have been the result of the rupture of this ovarian cyst, which seems remarkable in a child six weeks old.

AMERICAN PEDIATRIC SOCIETY.

PRELIMINARY PROGRAM.

The American Pediatric Society will hold its Fourth Annual Meeting in Boston, Mass., May 2d, 3d, and 4th, 1892.

The Sessions will be held in the Boston Medical Library Association Building, 19 Boylston Place (opposite the Common, between Tremont Street and Park Square).

Monday, May 2—First Session—2 p.m.—The President's Annual Address. By William Osler, M.D., of Baltimore, Md.

2. "Experiments as to the Value of Nascent Ozone in certain Forms of Diseases of Children, with Demonstration of an Efficient Generator," Augustus Caillé, M.D., New York City.

3. "Manifestations of La Grippe in Children," Chas. Warrington Earle, M.D., Chicago, Ill.

4. "An Epidemic of Alopecia in a School of Girls," Chas. P. Putnam, M.D., Boston, Mass.

Tuesday, May 3—Morning Session—10 a.m.—1. Discussion arranged by the Council on "The Relation of Rheumatism and Chorea," by C. W. Townsend, M.D., Boston, Mass.; M. Allen Starr, M.D., New York City; Samuel S. Adams, M.D., Washington, D.C.

2. "Nomenclature of Diseases of the Mouth," T. M. Rotch, M.D., Boston, Mass.

3. Report of the Committee on Nomenclature of Stomatitis.

4. "Pseudo-Diphtheric Processes," W. D. Booker, M.D., Baltimore, Md.

5. "Treatment of Diphtheria by Sublimations of Mercury," Dillon Brown, M.D., New York City.

Tuesday, May 3—Afternoon Session—3 p.m.—1. "Typhoid Fever in Children under Two Years," W. P. Northrup, M.D., New York City.

2. "Typhoid Fever in Children," Chas. Warrington Earle, M.D., Chicago, Ill.

3. "Typhoid Fever in Infancy," W. S. Christopher, M.D., Chicago, Ill.

4. "Acute Emphysema in Children, with Report of Cases," F. Forchheimer, M.D., Cincinnati, O.

5. "Pre-tubercular Anæmia," B. K. Rachford, M.D., Newport, Ky.

Tuesday, May 3—Evening Session—8 p.m.—1. Business Meeting at the residence of Dr. T. M. Rotch, 197 Commonwealth Avenue.

2. Report of the Council and election of officers.

Nine o'clock p.m.—Reception of the members of the American Pediatric Society, to be given by Dr. T. M. Rotch at his residence.

Wednesday, May 4—Morning Session—10 a.m.—1. "Prevention *versus* Medication in the Management of the Diseases of Children," I. N. Love, M.D., St. Louis, Mo.

2. "Syphilitic Broncho-Stenosis," A. Seibert, M.D., New York City.

3. "A Simple Method for Clinical Examination of Breast Milk," L. Emmet Holt, M.D., New York City.

4. "Sacro-Coccygeal Tumor in a Child Three Weeks Old ; Operation ; Recovery," F. Huber, M.D., New York City.

5. (Title to be announced.) Henry Koplik, M.D., New York City.

Wednesday, May 4—Afternoon Session—3 p.m.—1. "Two Tracheal and Bronchial Casts," F. Huber, M.D., New York City.

2. "A Case of Death from Laryngismus Stridulus in Incipient Rachitis," Samuel S. Adams, M.D., Washington, D.C.

3. "The Value of Milk Laboratories for the Advancement of Our Knowledge of Artificial Feeding,"¹ T. M. Rotch, M.D., Boston, Mass.

4. Action relative to the death of Dr. John Amory Jeffries, of Boston, Mass.

SAMUEL S. ADAMS, M.D.,
Secretary.

1632 K Street, Washington, D.C.

April 15, 1892.

¹ During the Sessions of the Society, the members are invited to visit and inspect the Milk Laboratory, 203 Clarendon Street.

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Original Communications.

PHYSICAL EDUCATION IN RELATION TO MENTAL DEVELOPMENT IN SCHOOL-LIFE.

BY THOMAS MORE MADDEN, M.D., F.R.C.S., ED.

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THE respective claims of physical and mental education to primary consideration in school-life, and the consequences ascribable to undue neglect or over-cultivation of either, are questions of no less medical than social interest. Until comparatively recently the term education was confined exclusively to mental training, and even yet we have imperfectly grasped the importance of attention to that development of the bodily powers, which is an essential preliminary to any well-devised system of child culture. Hence, without referring to the vast range of other subjects, which might be included under the caption of this brief communication, I shall now confine myself merely to again urging some views which have been impressed on myself by observation of the evils, which, as I think, are ascribable in this way to the present educational system. These now present themselves in two different aspects. First, on the one hand, the children of the poor in England, are at an absurdly early age, and before the possibility of any sufficient physical development, by the compulsory provisions of the school-board code, subjected

to a system of elementary education entirely disproportioned to the mental capacity of young children, and this necessarily largely at the expense of the physical powers to the free development of which the first eight or ten years of child-life should be devoted. Secondly, on the other hand, in a large proportion of cases, at least, the offspring of those of the better social position are educated on entirely opposite principles, and with results little less injurious, in public and other schools, where the physical powers are too exclusively cultivated at the expense of the mental and moral faculties. The latter error, however, is less important, inasmuch as it effects a comparatively limited number, whilst the former influences the great body of the rising population, and offers a sufficient explanation of the deterioration observable in the physique of the growing generation, who certainly contrast unfavorably in this respect with the physical though if less intellectually cultured race of the preëducational period. Looking at the overtasked and anæmic little children now chained to the desk by the school-boards, we might be tempted to believe:

“ ’Twas not the sires of such as these
 Who dared the elements and pathless seas ;
 But being of another mould—
 Rough, hardy, vigorous, manly, bold ! ”

At the present time a large part of the first ten years of life, which should be primarily devoted to physical and moral training, is given up to the development of the mental powers; the child when a mere infant being compelled to attend some school, where the immature brain is forced into abnormal and disastrous activity. On its return home, jaded in mind and body, to prepare for next day's task, such a child is necessarily unfit for the enjoyment of the physical exercise which is essential for its bodily development and health, or for the still more important elementary training of the affections and moral faculties and instillment of religious principles, which are better acquirable from home teachings than from any school-board system. We are all, of course, agreed as to

the duty of properly educating children so as to fit them mentally and bodily for the increasing requirements and competition of modern life. But as to the extent to which the former should be carried and the latter neglected in early childhood, there is, unfortunately, a great discrepancy between the rules of the education department, and the views of those who have to deal in disease with the consequences of the violation of the laws of nature. And hence, whilst little children are thereby overworked into disease or death, the physician must still raise his protesting voice, albeit it would apparently seem unheeded.

During the first eight or ten years of child-life, the amount of mental cultivation which a child's brain is capable of receiving with permanent advantage, is much less than is commonly believed. No greater physiological mistake is possible, than that of attempting any considerable degree of such culture, until the sufficient development of the physical stamina and moral faculties is accomplished. The organ of the mind is as much a part of the body as the head, and ere either can function properly, its vital force must be fostered and maintained by nutrition, and developed by physical exercise. A large proportion of those who come within the provisions of the elementary education code are semi-starved children of the poorest class, who when thus debilitated by privation are necessarily as much incapacitated for any mental strain, as for the accomplishment of any herculean feat of physical strength; it being not less inhuman, injudicious and impolitic to expect the former than it would be the latter, from those so circumstanced.

If the State, for reasons of public policy, determines that all children shall be compulsorily educated from their earliest years, it should certainly afford the means by which this may be least injuriously and most effectually carried out, by providing food and physical training, as well as mental education for every pauper child attending an elementary school. Amongst the results of overpressure in such schools under the boards referred to, are brain disease in all forms, viz.: cephalitis, cerebritis and men-

ingitis, as well as headache, sleeplessness, neuroses of every kind, and other evidences of cerebro-nervous disorders. On no other ground can the increasing prevalence of these affections amongst the little victims of the educational department be accounted for or explained, than by ascribing them to the new factors, "brain excitement" and the "overpressure," which in the case of young children are now too commonly disastrously associated with the process of misdirected education and neglected physical training.

In viewing the appending links of society there is no great cause for gratulation. The youth of both sexes doomed to the school-room are too often little elevated in point of salubrity above their humbler contemporaries. It is during school-life that the destiny of youth is fixed for the various professions and pursuits, into training for which the young are nowadays too prematurely forced by the increasing exigencies of the struggle for existence, wealth or distinction. What wonder then, that under such circumstances, the intellectual advantages thus secured are too dearly purchased at the expense of health. The physical stamina, as well as the mental powers, being too frequently thus so overstrained in this fierce competition, that both thereby become prematurely exhausted, and if not permanently, at least temporarily, debilitated and incapacitated for the ordinary functions. It is thus that infirmities of body and mind are acquired, multiplied, transmitted from parent to progeny, and consequently perpetuated in posterity. Physical exercise is obviously all the more essential for the maintenance of bodily health, as well as for the development of strength in these days of increasing brain work in our overcrowded centres of population. It is true that all exercise involves physical changes and organic disintegration, but it is also as truly reparative in its action, thereby guiding the current of the circulation by which new material is brought up to replace that which having become effete is washed away and eliminated through its agency. Exercise preserves the health and maintains the physique by developing the

size and functional power of the muscular system, voluntary and involuntary. With regard to physical exercise or training as brought before us in modern school-life, these two errors almost equally disastrous and prevalent, the one being its neglect, and the other its abuse, I have already alluded to the former as affecting the mentally over-tasked and physically neglected victims of the compulsory elementary education system. Nor is it confined to these, being largely extended to those educational establishments to which usage consigns the mental culture of girl-life in the more affluent classes, and in some of which, at the present day, the only provision made for physical exercise consists in the short walk daily, in processional order, at measured pace, which may be seen executed by girls, to whom at that age free muscular exercise and training are quite as necessary as for their more fortunate brothers, who are not thus restricted in their movements. In the latter case, however, the abuse of the physical education is often manifest, and to over-exercise in the cricket or foot-ball field, or to overtraining for cycling, rowing, athletics of every kind are oftentimes ascribable many of the cardiac and other organic diseases of after life. For, as Mr. McLarne pointed out, a most important principle in exercise is, that it should be regulated by individual fitness, for the exercise that scarcely amounts to exertion in one case, will be injurious and dangerous in another. It is every teacher's duty, therefore, to endeavor to ascertain the nature and extent of his pupils' physical resources, for his guidance in the regulation of their physical education. It would be impossible to discuss the physical and general management of school-life without some reference to the special requirements of female youth in these respects. Amongst the subjects included in this connection are *inter alia* the physical effects of some of the modes of dress, habits and occupations, which are enforced in female school-life by general usage. The results of the latter are perhaps most apparent amongst girls of the upper classes in society, in whom the effort to secure a uniform standard of accomplishments at

all hazards, has originated a system of training, which greatly increases the tendency to cerebro-nervous diseases now so commonly manifest in after years. Sedentary employments being from the earliest possible period resorted to, and to the exclusion of active exercise out-of-doors.

As the late Dr. James Johnson, long ago, well observed: "The slow but powerful influences of music, dancing, vivid colors, and odors on the nervous and reproductive systems, is quite overlooked." Many hours of severe application are employed in the acquisition of musical accomplishments, which are not uncommonly forgotten as soon as possible in after life. Nor can the powerful stimulus of music be thus daily applied to the sensitive system of female youth, without danger of developing or increasing any preëxistent tendency to hyperæsthetic morbid conditions of mind and body. Moreover, the excessive attention thus generally given to music in female school-life, as before observed, is likely to prove indirectly hurtful by leaving no sufficient time for other employment and exercises that might be serviceable to the school-girl's mind and body. The consequences of all this is, that too often she finally returns from school, as feeble physically, as mentally, capricious and hysterical. This condition I may add, is largely fostered by the pernicious sensational fictional literature, so often now put in the hands of children even at an early age, and by which the impressionable mind of girlhood is perverted and the passions stimulated, giving rise, not to speak of still graver consequences, to an abnormal development of the sentimentality commonly inherent in female youth, and thus reacting injuriously on the physical health. Instances of this kind are familiar to most physicians; there are probably few amongst us who have not been consulted by some anxious mother, alarmed by a daughter's return from a fashionable boarding-school, with evident symptoms of mental defection and nervous or cardiac disturbance, arising from causes beyond the stethoscopic diagnosis, and traceable to misdirected moral and physical education.

With regard to open air exercise, by which alone the

physical development of the body can be secured, and the physiological necessity for which is obviously equally imperative for boys and girls, this absurd and artificial distinction is, unfortunately, still generally enforced in the physical training accorded to both sexes. In the majority of cases, as Dr. Barlow observed, boys enjoy this freely, and of the best kind, in the unrestrained indulgence of their youthful sports. By means of these every muscle of the frame comes in for its share of active exercise, and free growth, vigor and health are the result. It would be happy for girls if some portion of such latitude were allowed to them also. But it is far otherwise. Even under the more favorable circumstances of country life, they are too much restricted from the free exercise which health requires. Their very dress unfits them from taking it, and the alleged indecorum of those active movements to which youth and spirits instinctively incite is a bar to even the attempt being made. At their age, the measured slow-paced daily walk is quite insufficient even for the muscles specially engaged, while it leaves many others wholly unexercised. If this be true of the more hale and robust inhabitants of the country, how much more forcibly does it apply to the delicate and attenuated residents of towns, and especially to the inmates of female schools. Of these establishments, the systems and habits require much revision, and until some effective reformation takes place, of which there is yet but little prospect, they will not fail to excite our sympathy and regret for the blanched aspects, the shadowy forms and sickly constitutions so continually presented, and which it is so painful to witness. Such beings are as little fitted for encountering the toils or fulfilling the duties of life, as are the plants of a hot-house for being transferred to the open borders. The special influence of the mode of dress adopted by girls on their physical health is one of the most important questions that come within the scope of this communication. This point has been discussed at some length in an article of mine in the volume of Dr. Keating's recently published *American Cyclopædia of Diseases of Children*, as well as

by many other previous writers, although, as I may repeat, the practical result has hitherto apparently been *nil*. The two cardinal points, as I observed in that article, to be borne in view with regard to female clothing at this, as at other periods of life, are firstly, that the material should be such as may serve to retain the necessary animal warmth, and secondly, that its form be so arranged as to occasion neither undue visceral compression, nor any interference with impeded muscular action. Hence, whatever little influence the physician may exercise in this matter should be employed to induce his clients at this epoch to adopt underclothing of flannel or merino, or Jaeger's undyed woolen fabric, as well as to persuade them to eschew those dearly-prized compressing corsets, elastic garters, and tightly-fitting high-heeled boots, by which young ladies seek to reduce their natural proportions, however robust, and at whatever cost of comfort or health within the limits prescribed as "the perils of fashion and the mould of form." This advice we should give whenever the occasion offers, seldom as our counsel may be followed, for in such matters fashion and the modiste will probably continue to the end of the chapter, to reign triumphant over common sense and the doctor. The injurious consequences of the absurd modes prevalent in the dress of female youth are exemplified in the effects of tight-lacing on the pulmonary functions, for the normal accomplishment of which free expansion of the chest and unimpeded action of all the muscles connected with respiration are so essential. The results of errors of this kind are most apparent at the period of puberty, when the young lady exchanges the comparatively easy garb of girlhood for that imposed by the requirements of fashionable life. And these errors reach their extreme in the attire of the ball-room or theatre, or what, on the *lucus a non lucendo* principle, is now regarded as full dress. "At these assemblies," as Dr. Barlow has well observed, "the tightly-laced stays, the exposed chest, and their draperies furnish a combination of influences, the combined effects of which no constitution could withstand, while to these is yet to be added

that of respiring for hours in a heated and vitiated atmosphere, and after this, of passing, when relaxed and exhausted, into the cold currents of a frosty night-air. So far from wondering that many suffer from these egregious imprudencies, our surprise should be, that any escape, and instead of the inherent delicacy so often imputed to the constitution of females, as explanatory of their peculiar ailments, we have ample proof in their powers of resisting such noxious influences, that they possess conservative energies not inferior to those of the most robust male; were men to be so laced, so imperfectly exercised, so inadequately clothed, so suffocated, so exposed, their superiority of bodily vigor would soon cease to have any existence."

Defect of clothing, though most signal in the chest and shoulders is not confined to the upper part of the body. The feet require warmth, which subservience to fashion prevents. They cannot be compressed, but at the cost of much suffering, some distortion, and the infliction of positive disease. Fashion also permits the legs to be covered with only the thinnest materials. Thus the capillary circulation of the feet rendered sufficiently languid by the general weakness becomes further impeded by the pressure of tight shoes and the debilitating effects of cold. The crippled state too, thus occasioned, is a further obstacle to efficient exercise, and so adds to the general debility.

Formerly the period of puberty in women was less subject than the same epoch in the opposite sex, to some of the predisposing causes of reflex cerebro-nervous disorders other than those connected with their utero-ovarian health. This, however, is hardly the case at the present day, in which women are not only liable to those special functional derangements productive of nervous disturbances, but, moreover, in too many cases are also now exposed to all the accidental causes of cerebro-nervous disorders to which formerly only the ruder sex was subject. . . .

In connection with the physical training of boyhood, I may venture to say a few words, with reference to the

results now frequently observable from the abuse of alcohol and tobacco in school days. Amongst the consequences of the killing pace at which the race of life is now too often run from its start, the period of childhood has become so abridged by the necessity of entering on the struggle for existence, before the sufficient development of the physical, as well as of the moral and mental powers, that a premature breakdown in any of these is no longer exceptional.

One of its phases is exemplified by the painful exhibitions of alcoholism now witnessed even amongst young children, the pathological consequences of whose tendencies in this way, whether inherited or acquired, are daily brought under my clinical observation in the Children's Hospital, in the form of acute cerebral, gastric and hepatic disorders, as well as in protean varieties of chronic cerebro-spinal diseases, and neurotic affections of every kind. Elsewhere I have reported many of these cases of alcoholism, which have thus been brought under observation in my hospital. In the majority of these instances the tendency referred to appeared inherited, and was most marked in those whose mothers were inebriated—intemperance in women also bearing in other ways on the physical condition of their offspring, and by their special predisposition to strumous, tubercular and other constitutional taints. These evils should warn us against the continuance of the custom of giving beer or any other stimulant as a portion of the daily dietary in public and other schools, as well as against the habit at an earlier age, of giving such stimulants as a *bonne bouche* to children which is so general in its practice amongst all classes, and so calamitous in its results. Even in those exceptional cases, in which such stimulants may be necessary, we should never sanction their administration save under the guise, and in the definite doses of other remedial agents. And my own experience in hospital and private practice, at home and abroad, has amply confirmed the view expressed in a work of mine published many years since, that it is physiologically wrong, as well as morally unjustifiable, ever to allow

a healthy youth to taste alcohol in any form. With regard to the effects of the abuse of tobacco, during early puberty of which we see too many instances, especially amongst the neglected children of the poor, I may refer to an observation I have before made on "the stunted and prematurely aged appearance of children in Portugal, where smoking is indulged in from the earliest possible age, and where, in the streets of Lisbon, I have often seen with astonishment, boys much under the age of puberty, gravely sucking a strong cigar, with apparently the same gusto which our less precocious progeny derive from the forbidden delights of the sugar-stick." * There can be no doubt that the influence of the nicotine thus absorbed must be most injurious at this age, and this is evident in the physical aspect of the youth referred to, and this is more marked in the numerous victims of the still more deleterious custom of cigarette smoking, now becoming so general with boys.

EMPYEMA IN CHILDHOOD, ITS PRIMARY OCCURRENCE AND ITS RELATIONS TO PNEUMONIA AND SEROUS EFFUSION. †

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New York.

THE ætiology of pleurisies both serous and sero-purulent has been cleared up, in many respects, during the last decade, and this advance is due chiefly to the light thrown upon these processes by bacterioscopic science. In this respect we have become enabled to approach these cases more intelligently than hitherto, both in a therapeutic as well as prognostic standpoint. The presence of a chest effusion in children can now be judged from a point of view which holds out much more encour-

* Dr. More Madden. "The Health Resorts of Europe and Africa in the Treatment of Chronic Disease." 3d Edition, 1891, p. 47.

† Read at the New York Academy of Medicine, Section on Pediatrics, March, 1892.

agement for the eventual recovery of our little patients than was possible formerly. We know now that children may develop an effusion in the chest, not as a result of constitutional conditions alone, but from causes to which we also trace a development of pneumonia. Such children we can confidently assure parents will, in after life, not suffer any more from the results of a chest effusion of a certain nature (pneumonic), than they will suffer from any simple pneumonia which they may have contracted. Once relieved of such effusions, whether they take the form of serous or purulent exudates, there is a tendency not only to ultimate complete recovery, but to leave the lung in after years unimpaired in its usefulness. True, such is not the history of all exudates (tubercular)—a point which we shall touch upon later.

In children as in the adult, the line between a serous and purulent exudate is, I would say, in most cases, very indefinite. The term serous pleurisy (or pleurisy with effusion, subacute pleurisy) has remained in our nomenclature, and by it I understand rather a pleurisy in which the effusion has the gross property of transparency to the eye, in other words, it is purely a microscopic designation. It is highly unsatisfactory clinically, and leads to many gross errors both of diagnosis and treatment. Empyema is a term which may mean to the clinician an effusion which varies from a cloudy fluid to a thick pus of various grades of consistency. If we look at these terms thus there is very little harm done clinically, but if we lose sight of the ætiology in making plans as to prognosis and treatment upon the gross appearance of fluid in the chest of children we shall not only go wrong, but shall do a great injustice to our little patients by perpetuating the errors of treatment and judgment now too long in vogue. This, I insist, is nowhere so true as in the domain of diseases of the chest in childhood. These little subjects are peculiarly prone to develop effusions of an acute nature in the chest. This is strikingly evident as compared to the adult. Moreover, on anatomical grounds, the chest effusion of children, in most cases, scarcely bears

the serious significance it does in the adult of an impairment of the integrity of the adjacent lung tissue either preceding or following the disease. Speaking only of the acute effusion in children, we are struck by the overwhelming frequency of the purulent above the so-called serous forms. If a pleurisy in an infant or a child has at first been serous it is most apt, to the astonishment of the inexperienced, to turn purulent within a short time, say within even twenty-four hours. Is this a real or apparent change? In most cases this change from a serous to a purulent exudate is only an apparent one. It was formerly contended that if an exudate at the first exploratory puncture proved to be clear so-called serous and had subsequently changed to a purulent character, some secondary infection had taken place. The primary effusion had become contaminated. This we now hold to be an unwarranted conclusion. With ordinary cleanliness the merest tyro can safely introduce a needle into the chest without fear of contaminating the contained pleural fluid.

All serous exudates apparently so at first which subsequently turn purulent, do so from causes independent of external interference, but inherent in themselves. Many serous exudates as hinted above, if examined microscopically contain not only leucocytes and blood-cells, but pus-producing micro-organisms. Thus at first puncture we should never fail to examine in cover-glass stain, at least, if time or convenience does not permit further study the nature of a pleural exudate as to contained micro-organisms. In children the exudate of an acute nature, devoid of organisms is the uncommon form. Thus, if we assume that, as I do, a serous exudate in children containing micro-organisms is but a step removed from a purulent exudate and is apt to become such at any moment, *microscopically*, we can approach the consideration of our cases intelligently. Moreover, the former custom to refrain at an early stage from posting ourselves as to the nature of an effusion in the chest by puncture, for fear of contaminating contained effusion, is untenable and leaves the patient in needless, I may say, harmful suspense.

My next argument concerns the point as to whether in children an empyema can be primary. By this it is understood that an empyema may from the very onset be primary in the pleura without any connexion with external infections or processes in the lung.

Van Ziemsen has recorded cases of so-called rheumatic pleurisies, serous in nature, which occurred in children, there was no complicating rheumatism, but great amount of exudate, serous in character and poor in fibrin. Fraentzel talks of a pleuritis acutissima, in which (in adults) a pleurisy is primary in the pleura.

In children, however, these forms of serous pleurisy or empyema, ætiologically primary in the pleural sac and without any connection with processes in the lung or elsewhere, must be one of the rarest forms. I have not yet seen a case of my own of acute pleurisy, with effusion or empyema, in a child, in which ill influences, except the indefinite term exposure, could be satisfactorily excluded ætiologically. From this experience, and it is quite satisfying as to material, it would at present be safest in most cases to regard empyema as a secondary complicating condition, especially in childhood. Can empyema be such, that is, a purulent effusion from the outset of the disease? It undoubtedly can and is. The meta-pneumonic empyema in childhood is purulent from the outset, and this is so with a surprisingly good prognostic expectation. These meta-pneumonic empyemas hold out the best hope of complete recovery to the little patients, in spite of large or enormous fibrinous accumulations in the pleural cavity and distinct purulent qualities of the exudate with its tendencies to bore and perforate externally.

From what has been said it will be seen that the relation between pleuritis serous or purulent and processes in the lung, especially pneumonia, is a close one. Clinically it is sometimes easy to trace the development, advance or retrograde of one or the other process. In some cases the one process pleurisy will predominate above the other, and these are the cases in which the effusion soon occupies the whole attention of the clinician; the symp-

toms produced overshadow all else that may have preceded. These are the cases in which there is an acute onset with a distinct high sustained temperature, with signs of pneumonic consolidation in the upper or lower lobe of one lung (the physical signs of pneumonia); but in the course of a few days these gradually, by imperceptible stages, are replaced by signs and symptoms of an entirely different character in such a manner as to give the impression that a mistake in diagnosis had occurred. But in these very cases we can justify the diagnosis of preceding pneumonia to a reasonable degree of certainty by finding in the effusion the same incitants to inflammatory exudate as in the processes which must have preceded in the lung (the pneumococcus of Fraenkel and Weichselbaum.) In this set of cases where symptoms of beginning and effected consolidation of the lung are replaced by those of fluid or suspicions of fluid verified by needle exploration, the crisis or lysis which we are led in some cases to expect at the eighth, ninth, tenth or thirteenth day does not take place, the fever falls almost to the normal, but not quite to this level, and takes a varying up and down course for days. A systematic plan of observation of broncho-pneumonia or lobar pneumonia in children should always bear in mind this failure or omission of crisis or lysis of temperature. Then not the less frequently is it possible to trace the relationship between pneumonia and pleurisy, serous or purulent, in children where the upper lobes alone are affected. A case in point is as follows. A child æt. two years, of good antecedent history, is attacked with broncho-pneumonia in the upper lobe of the left lung, the physical signs of tympanitic dulness in the initial stage, crepitant râle, the dulness and bronchial voice and breathing following on the fourth day is also accompanied on the sixth day with marked dulness beginning at the base of the lung and stretching up to about the breadth of $2\frac{1}{2}$ fingers, with absence of breathing and voice sounds. This must be taken as an indication of added pleuritic effusion.

Many of these cases go no further, the effusion does not increase in quantity the intervening chest area between

the fluid and the consolidation around to the axilla and in front gives a good pulmonic resonance. Crisis or lysis may take place even with the presence of fluid, and I have seen absorption of such small quantities of fluid under a normal or nearly normal course of temperature. In other cases as stated, the pleuritic effusion can be seen to increase until marked symptoms are produced. In some rare cases after operation, as I have published, a meta-pneumonic pleurisy (empyema) is relieved only to be followed by a pneumonia in the healthy lung and death of the patient. The relationship clinically between pleuritic inflammation and pneumonia is thus not vague but quite well defined. The reason that we do not find it classically evident in every case is, that the signs of lung involvement or fluid in children are sometimes equivocal, the chest is small, and even when full of fluid sometimes demands skilful percussion to elicit dulness or flatness. Other signs, as absence of breathing or bronchophony, being absent in many cases. Small areas of pneumonic consolidation very frequently baffle detection. In recent years the close relationship between pneumonia and pleurisy in adults and children has been more satisfactorily established by the findings of bacteriological modes of research. In pleuritic effusions of an acute nature such as have been described, we find in meta-pneumonic cases the so-called pneumococcus of Fraenkel and Weichselbaum. This microbe has been found in other complications of pneumonia (meningitis) of a purulent nature. Its suppurative tendencies are well proven. It is not difficult to see how in an immense lymph station as the pleura must be regarded the overwhelming invasion of such micro-organisms will produce a mischievous complication. They can invade the pleura through the sub-pleural lymph spaces. Why certain pneumonias in children will run their course without any empyema, and in others the pneumococcus will cause such a complication, must be explained upon grounds of immunity inherent or acquired, yet to be elaborated. In certain infectious diseases the soil is so prepared for complications, as for example the

empyemas following measles, that we can well stretch our theories to fit such cases. But starting with two healthy organisms each with broncho- or lobar pneumonia, we have yet to explain why the one will escape and the other develop pleuritis, demanding distinct attention from the severity of symptoms produced.

Most interesting, and to-day still under discussion, are those purulent or serous exudates in which we do not find the pneumococcus, but micro-organisms of less marked selective tendencies, microbes which are found in other processes entirely foreign to pneumonias. I refer to those exudates in which the streptococcus or staphylococcus is found. I think we may with justice class a vast number of these purulent exudates as also meta-pneumonic, though we fail to find the organism in the exudate to which we accord ætiological dignity in primary pneumonia. That such purulent exudates follow pneumonia there is little doubt. The microbes above mentioned are present as mixed infections in most cases of pneumonia as the earlier work in this direction shows. Indeed, it is accepted by the best authorities that the streptococcus in itself is capable of producing certain forms of complicating pneumonias. I need only remind you of the work of Northrup and Prudden upon the complicating pneumonias to bear out the above assertion. Thus in many of these purulent exudates, the adjacent lung tissue may have been the seat of processes in which the streptococcus has played a leading part. The staphylococcus is traced to the same depot, but in those empyemas or purulent exudates which I have examined, only one of these organisms was present. My cases did not contain the two in combination. It has been questioned whether a purulent or serous exudate which contains the streptococcus or staphylococcus may be primary in the pleura without any relationship to antecedent pneumonia or other infections. Such questions have arisen through cases somewhat similar to the following in my own practice within a few days.

Baby, female, æt. ten months, taken suddenly ill with fever and slight cough. An examination of the chest on

second day of illness revealed nothing though the fever was pronounced and high, and there was some rapidity to breathing though no dyspnœa, the tonsils being enlarged the case was put down to simple tonsillitis. On the eighth day of illness, I saw the case again and the fever being high and dyspnœa marked, I looked for some definite causation, dulness over whole of right side but, no bronchophony present, breathing sounds heard also; needle introduced and greenish serum withdrawn contained staphylococcus pyogenes aureus in pure culture. This case did not show anything at first visit in the lungs, and at the eighth day, with a chest full of fluid, there were also equivocal physical signs. Who will say here whether a central pneumonia or unobserved small area elsewhere had not preceded, or can the amygdalitis be placed to the door of the pleurisy? Finally, we have pleurisies complicating the secondary pneumonias and also independent of pneumonia in the infectious diseases (measles, scarlet fever, septico-pyæmia.) Here the effusion for the greater part shows the presence of the streptococcus. In one case recently of septico-pyæmia with osteo-myelitis (streptococcus) in which an effusion followed a broncho-pneumonia in the left side, a syringe of fluid withdrawn failed to show any micro-organisms. In this case the broncho-pneumonia and pleurisy could be distinctly separated in their course and the pleurisy was absorbed without interference. I ascribe the absence of micro-organisms to their entrapment in fibrin clots through which the needle may have passed in its course into the chest. No argument upon pleurisies, serous or purulent, is complete without reference to the tubercular forms of pleuritic exudate. It is plainly unscientific and unjust to a patient to treat or operate for pleuritic exudate, and after months of suffering at last determine that the pleurisy is a tubercular one. These things should be determined at the very outset, more especially as in the tubercular forms we find, added to the presence of micro-organisms in the exudate, which are ascribed to be the ætiological factor in tuberculosis, others present in simple exudates. These cases

are difficult to differentiate from pneumonic or primary (so-called) cases, because the bacillus is present in such small quantities, and sometimes the serous exudates are free from organisms. From the argument it is seen how the author regards the purulent or serous pleurisy following a pneumonia. With energetic and correct treatment at the outset with a view to the ultimate saving of the strength of our little patients, and not to the peculiar individual notions of the physician, the prognosis of purulent and sero-purulent effusions in infancy and childhood should be that of pneumonia in the same state.

POINTS IN THE HISTORY AND PATHOLOGY OF PNEUMONIA IN CHILDREN.

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LITTLE particularly new can be said in regard to pneumonia, either in children or adults, at the present time; original investigation in all directions has its limits, is either retarded or facilitated according to circumstances, and so far as pneumonia is concerned, it seems for the present to have reached its *status quo*. There has been of late a great deal of activity in the field of bacteriology, much progress has been made in that direction, and a large and fruitful outcome is expected from that source of investigation. Besides this, there are points of interest in relation to a few thoughts, not perhaps the result of actual investigation, but deductions from clinical experience, which would repay a casual review.

Pneumonia in children differs in no very marked degree from pneumonia in adults. The essential elements accompanying the disease, or those occurring in the one, are eminently prominent in the other, so that what is said of the ætiology, symptomatology, anatomical relations and terminology of one, will illustrate fully the same conditions in the other—if we except the difference in

age and environment and the difference in susceptibility in the two extremes of life.

The epochs from which date important events in the history of pneumonia are the discovery of auscultation, the differentiation of croupous or lobar, from catarrhal or lobular pneumonia, the prediction of its specific character, and its bacillary origin. These four points show the strides made in the development of this disease, at first slow, but now becoming more rapid with each succeeding year.

The impressions made by Laennec upon his generation and upon succeeding generations had a long tenure. His doctrines have been continued, laudably, with few deviations, up to within a recent period—even to-day they are not materially altered and have never been controverted or gainsaid, and as far as they went are as firmly fixed to-day as they have ever been. The engorgement, the red hepatization, and the gray hepatization are as firmly adhered to to-day as ever. From Sydenham to Cullen the understanding of inflammation of the lungs was very imperfect, from Cullen to Laennec there was merely a prospect of a better idea; but Laennec illustrated the subject far better than any of his predecessors, and was the only one who made the intelligent study of diseases of the lungs a possibility. The knowledge of the stethoscope, and the revelations made by auscultation, as introduced by Laennec, and percussion, as had previously been done by Avenbrugger, were certainly great advances over older methods. Juergensen says: "With Laennec began a new era in the theory of inflammation of the lungs," and Stokes says: "Time has shown that the introduction of auscultation and its subsidiary physical signs has been one of the greatest boons ever conferred by the genius of man upon the world."

The prevalent opinion, however, of that period that all cases of acute pneumonia were placed in the same category, that it was a local inflammation arising from the same causes and subject to the same changes as ordinary inflammation has proven to be erroneous. The differentiation of croupous and catarrhal, lobar from lobular pneu-

monia was another element of successful investigation, and this carried with it the conviction that there was an ætiological difference in the two varieties of the same disorder, in that while the latter might be produced ordinarily by catching cold, the former was doubtless the result of some other more potent agent as yet not well understood. Dr. J. Burden Sanderson says: "That genuine pneumonia is often a consequence of catching cold no one will dispute. But when a person in good health is unexpectedly attacked by this disease in consequence of a chill, there is something else which gives to the chill its formidable significance." Croonian Lectures, 1891. To discover this potent agent, this "something else" bacteriologists are making diligent and praiseworthy search, with prospects of success.

For a long time the unity and individuality of the inflammatory process in pneumonia has been questioned. Dr. Austin Flint was one of the first who believed in and taught the specific nature of the pneumonia process. He said: "That pneumonia is an inflammatory affection, I do not deny. It is a local manifestation and furnishes the anatomical characteristics of a febrile disease, sustaining to the latter a relation analogous to that which the lesions of the solitary and agminated glands of the small intestines sustain to typhoid fever."—*Medical Record*. Napier says: "The commonly accepted view that inflammation of the lungs was due to cold or exposure, that in fact, it resembled catarrh in its origin, is now doubted by many, who were disposed to regard it one of the specific, perhaps one of the infectious diseases."—*British Medical Journal*. Renshaw for a long time considered pneumonia a specific infectious disease. He regarded the symptoms as very different from simple inflammation. Juergensen says: "Croupous pneumonia is a constitutional disease, and is not dependent upon a local cause. The pulmonary inflammation is merely the chief symptom, and the morbid phenomena are due to the local affection. The hypothesis of a morbid cause is indispensable. Croupous pneumonia belongs to the class of infectious diseases."

He who disbelieves in the specific cause or nature of acute pneumonia at the present day, is blind to the revelations that are constantly made around us. The fields of hygiene and bacteriology have contributed so largely to astonish the world by their revelations, that no one can doubt the indications already given, or that this new belief will, in no distant day, be made an established fact. Bacteria of different species are crowding and probably have ever crowded the world for good or evil, and are, and have been carrying with them many kinds of infection to which is attributable most, if not all, the maladies with which mankind is afflicted, to combat which is the main object of practical and preventive medicine.

Burden Sanderson says: "Several species of microphyte have during the last dozen years been regarded as the cause of pneumonia. Early in 1883 the late Dr. Friedländer succeeded in cultivating from pneumonia sputa a characteristic bacillus, which was proved by inoculation to be pathogenic, but the evidence was not so satisfactory either clinically or experimentally as to entitle it to be regarded as more than a cause of pulmonary inflammation. But there is another microphyte known as the diplococcus of Weichselbaum, or pneumococcus of Fraenkel, in English the pneumonia dumb-bell. This was first discovered through Pasteur, in 1881; the subject was taken up by Sternberg, and investigated bacteriologically, and found that in all the animals inoculated the same microphyte occurred. Then Fraenkel, in 1886, repeated the experiments of Sternberg, found his microphyte and obtained pure cultures of it in five out of seven cases of pneumonia examined, settled its specific characters and pathogenic action and christened it pneumococcus. The same year Dr. Weichselbaum, in Vienna, made an independent discovery of the same microphyte and described it under the name of diplococcus. He investigated eighty-eight cases of pneumonia and found it in eighty-one." Irrespective of its relation to pneumonia, Sanderson says: "The pneumococcus is one of the most remarkable microphytes known; first, because under certain conditions it is

extremely virulent; but, secondly, it exemplifies the general principle that virulence is one of the most variable attributes of a microphyte—one which is most affected by its environments. Experiments show that even when introduced in the smallest quantity into the subcutaneous tissue of the rabbit it multiplies rapidly both in the blood and in the tissues, and the septicæmia thus produced is of such rapid progress that, with the exception of the enlargement of the spleen, it leaves no lesions behind it, and it is capable of thriving either as an ærophyte or as an an-ærophyte." He also says: "Dr. Netter, director of the Laboratory of Hygiene at Paris, investigating the subject with special reference (1) to the constant presence of the pneumococcus in cases of croupous pneumonia, (2) to its participation in other acute processes, and (3) to the ætiological significance of its presence in the saliva of apparently healthy persons, he succeeded in cultivating the microphyte in the first twenty-seven cases admitted into hospital without a failure, from which he regarded the first point as provisionally settled; in the second he found in secondary inflammations of other internal organs the diplococcus occurs with a frequency comparable with the streptococcus, and as to the third point its presence in the saliva is held by Netter to be a reminder of pneumonia and is met with in persons who have had pneumonia, and he connects its presence with that liability to recurrence of the disease which is often observed." See "Croonian Lectures" and *British Medical Journal*, 1891.

The points thus far illustrated by experiment and investigation relate more particularly to croupous pneumonia, yet even catarrhal or broncho-pneumonia, whose ætiology seems simple and easily to be recognized, may be, and doubtless is, an infectious disease, and propagated by a contagium, or is perhaps of bacilliary origin, as we find in such affections as epidemic influenza. The history of epidemic influenza, which has been so prevalent throughout the most habitable and popular parts of the world for the past eighteen months, has proven conclusively its infectious, and specific character and its close association

with, and easy termination into pneumonia—fully one-third of the cases reported having had such an association or termination. Simple cold effecting mucous membranes has its limits here also, for as Niemeyer says: “As no mucous membrane with mucous glands exist in the pulmonary vesicles the name catarrhal pneumonia is not quite applicable to the disease in question,” and we know that the terminal bronchi and alveoli are lined with squamous epithelium which makes them quite different in structure from the purely mucous tissues, and makes the appellation catarrhal rather a misnomer.

The general consensus of opinion, however, in regard to so-called croupous pneumonia, is that it is a specific fever, depending on a specific cause, the pulmonary lesion being only symptomatic of the real disease, and is analogous to those lesions occurring in other specific or zymotic affections, such as typhoid or typhus fevers, acute articular rheumatism, scarlet fever, and cerebro-spinal meningitis, and may be associated with such diseases. Burden Sanderson says: “We have evidence of the most trustworthy kind as to its (the pneumococcus) association with that most specific and infective inflammations—epidemic cerebro-spinal meningitis—a disease which is often associated with croupous pneumonia; and also a remarkable series of cases of otitis of the middle ear published by Zaufal. Its presence in the middle ear is, of course, easy to understand; but how it finds its way into the cerebro-spinal cavity it is difficult to explain. *Op. cit.* Other points confirming its specific character are that the relations between the local affection and the fever are different from those in ordinary inflammation, that it has a course and cycle of its own which cannot be abridged any more than typhoid fever or the eruptive fevers can be arrested.”

The character of the exudation in acute pneumonia has frequently been discussed at length by eminent men, and with varying success of the sides differently championed. German authors, with Niemeyer at their head, as first expressed, regarded it as a true croupous exudation. Niemeyer

says: "Croupous pneumonia is inflammation of the lungs in which the air-cells are involved in a process identical with that which attacks the mucous membrane of the larynx in croup." English and American physicians believe more in its fibrinous character. Dr. Alonzo Clarke said, however, "there was not a vestige of false membrane in the plug that constitutes the pneumonia granulation, and let it be understood," he said, "that in croupous pneumonia there is no croup at all." Juergensen says "a fibrinous exudation is poured out upon the mucous membrane, and then coagulates." Polloch says "it is an exudation of white and red corpuscles into the alveolar cells and the bronchioles are filled with coagula even up to those of the fifth magnitude." Rhindfleisch says "the effusion which at first appears consists of an albuminous, viscid fluid, and this is succeeded by exudation and extravasation." There is no doubt the opinion of Niemeyer is correct, that in the second stage, the time of the exudation and of red hepatization, the air disappears from the air vesicles and the latter are filled by small, firm plugs of coagulated fibrin, to which an admixture of blood imparts a reddish color, and a similar exudation takes place in the extremities of the bronchi, and the granules (which are merely the fibrinous plugs) can no longer be extracted from the lungs by scraping with the scalpel, but adhere firmly to the walls of the air-cells. This anatomical condition does not differ materially from statements of other investigators, and may be considered as embodying the correct information on this point of the subject. The anatomical relations accompanying the three ordinary stages of pneumonia are familiar subjects. The period of engorgement, the period of red hepatization, and the period of gray hepatization, or purulent effusion, still mark the stages through which the disease passes, if continuous, or if it is not arrested in its progress after its initial stage.

These facts may not be essential from a clinical standpoint, but no well-informed clinician can afford to discard them if he would be successful in his therapy. Naturally the whole field comes before him, and he will be fortunate

if he grasp the situation as well intuitively as intelligently.

The extremes of life-infancy and old age are said to be alike and subject to the same ills, and yet this is not practically correct. They may be alike as regards physical feebleness, but one is feeble yet growing stronger, and the other is feeble and growing more infirm. Both are subject to ills due to their feebleness or want of power of resistance, but the chances in the one to recover from such ills is far greater than the other. There may be some analogy existing between them on this ground, but still the diversity of age and difference in structure limits the area of this similarity, and in treating of diseases to which all are amenable difference in age is considered, but not considered so much as the condition of the subject at the time affected. We may, however, at all times view the infant or child as apart, and as a separate individuality, and the diseases to which they are liable as distinct entities and to be treated on grounds quite distinguishable from those in adult life.

The diagnosis of children's diseases is far more difficult than those in adults, and this relates particularly to pneumonia, for we are deprived of many pathognomonic and subjective symptoms, which on account of their age they are unable to express by signs or language, such as those which are always manifest in those of more advanced life. As West says; "You cannot question your patient, or if old enough to speak, still, through fear, or from comprehending you but imperfectly, he will give you an incorrect answer. You try to gather information from the expression of his countenance, but the child is fretful, and will not bear to be looked at. You endeavor to feel his pulse, he struggles in alarm; you auscultate his chest and he breaks out in a violent fit of crying. Some practitioners never surmount these difficulties, and the diseases of children are consequently a sealed book to them." Your information will come frequently and principally from the mother or nurse, which will often be erroneous, and stated from impressions made from their standpoint which may be incorrect or

misleading, and you will have to interrogate the child by tact, in its own unspoken language, or by signs which they can understand. Take for instance a case of lobar pneumonia in a very young child. It is suddenly indisposed. It is feverish, with evening exacerbation, is restless and fretful, sleeps unsoundly, or wakes up in a state of alarm, refuses to take its nourishment, has thirst, the face is flushed and the tongue and lips florid, with a short and dry cough, not much cough, but enough to be observed, respiration a little hurried and pulse quick, and all the signs indicative of a general fever. The child may vomit, and its breathing be entirely oral. The symptoms thus described, we may find in all irritative conditions and fevers of children—in the first stages of the exanthemata, in gastric disorders, and in all cerebral affections. The pain is not usually manifested, if any, by any especial sign except by the restlessness and fretfulness of the child, which does not locate it, and auscultation frequently gives no positive information as to the actual state of the patient's lungs. The diagnosis is easier in broncho-pneumonia where a catarrhal condition is first shown, but the difficulty of diagnosis is here also apparent, as the catarrhal symptoms extend into the capillary bronchi, plugs of thick muco-pus block them up, and the air-cells collapse for want of air, and give such physical signs as might simulate anything else—as emphysema, empyema or effusion.

The difficulty of diagnosis is shown very remarkably in a report of a case in *The Lancet*, January 2, 1892, by W. B. DeJersey, senior resident medical officer Evelina Hospital for sick children, of gangrene of the lungs following pneumonia, in a child twenty-one months old.

H. S., æt. twenty-one months, admitted into hospital November 3, 1891. The infant was fat and healthy till its present illness, eight weeks previous to admission, when he first became feverish. A week later he was seen by a doctor who said he had bronchitis, and ordered a poultice to his chest. Five weeks before admission he became much worse, with severe dyspnœa, loss of appetite and

fever. On admission, fairly well nourished, face pale, alæ nasi working; no herpes. Temperature, 101.6° F.; pulse, 146; respiration, 36. Markedly rachitic, mouth and throat healthy, tongue furred, breath not offensive, wooden dulness over whole of left chest, except near spine, where there was rather more resonance. Blowing breathing in front from apex to nipple, only very faint distant breath sounds elsewhere; no crepitation or moist sounds. On right side a very fine crepitation at base, otherwise healthy. Heart sounds normal, apex beat not displaced; nothing abnormal in abdomen. Left side of chest quarter of an inch larger than right. An exploring needle was inserted into the left chest, first in the sixth space, in the midaxillary line; second in the sixth space external to the angle of the scapula. In each case pus was withdrawn, but in neither case could a syringefull be obtained. Considering the physical signs and the pus obtained a sufficient warrant and incision was made into the sixth space, between the post- and midaxillary lines. About a drachm of pus escaped with an extremely fetid odor. On inserting the finger between the ribs, soft friable lung, which was easily broken down, could be felt. The temperature gradually fell after the operation to 98° F., pulse 124, respiration 36.

November 4th.—Child looking ill; pulse 130, respiration 50, temperature 103° F. Dressed; thin brown discharge, very offensive odor.

November 5th.—Face pale, child apathetic all day, some diarrhœa and vomiting, both very offensive. Dressed; discharge as before; dulness wooden over whole of left lung. No breathing sound heard.

November 6th.—Temperature rose all day after being down yesterday; vomiting less; no diarrhœa; child restless all this evening, dying quietly at 6:30 P.M. Breath for last twenty-four hours very offensive. Treatment: Quinine and stimulants.

Necropsy.—Left lung solid, lobes widely dilated and thickened, containing a large amount of pus. Scattered patches of gangrene all over lung, the whole very fetid. Pleura adherent firmly all over, some bronchitis in right lung, nothing else observed in any part of body. No tubercles found anywhere.

In his remarks he says, the above case is interesting on two grounds: first, the fact of gangrene of lung occurring in so young a child, after what was in all probability pneu-

monia; second, the difficulty in diagnosis. At the post-mortem examination no disease of the heart or its valves was found, and there was no clots, anti- or post-mortem, and no plugging in pulmonary artery, and the cause of the condition could not be put down to simple embolism or septic embolism, as there was no cause for it. Acute inflammation would account for the thickening of the bronchial tubes, and the dilatation would easily occur in their softened condition by the efforts of expiration and inspiration, and by coughing, the lung itself unable to withstand the acute attack, so widely spread, became gangrenous. Though very disorganized, there was but little doubt on careful examination that the lung had been in a pneumonic condition previously. With regard to the difficulty of diagnosis all the signs of fluid were present, except displacement of the heart.

Pneumonia rarely occurs in children before dentition. "The time when inflammation of the lungs is most prevalent," says West, "coincides exactly with the time when the susceptibility of all mucous membranes is at its highest point, namely, the period of dentition." Lobular or catarrhal pneumonia occurs more frequently in the early months of life, lobar or croupous not exceptionally, before the second year, which may occur then, either as an idiopathic, or as a secondary affection. It may be arrested at the first stage, but more frequently the second, and even third stages may co-exist. In about sixteen per cent. the first and second stages co-exist; in five per cent. the first and third; in twenty-six per cent. the second and third; in fifteen per cent. all three stages; in fourteen per cent. the first stage; fourteen per cent. in the second; twelve per cent. in the third. This coincides very nearly with what occurs in adults, the difference being that the three stages co-exist oftener in children than those in mature life. It is because of the tenacity with which some children cling to life that we so frequently find the disease proceeds to the suppurative stage, and on post-mortem find the lungs so disorganized. This occurs also in adults. I remember the case of an officer, a released prisoner, who

entered the United States (Naval School) Hospital, Annapolis, Md., in 1863, in the third stage of pneumonia. On post-mortem the left lung was a putrid mass, and there was only about one-third of the right lung remaining, the cavity being filled with broken down shreds, and *débris* of lung tissue entirely unrecognizable.

"Not only are the physical characters of the lung in lobar pneumonia the same in children as in adults," says West, "but the three stages of engorgement of red and gray hepatization are observed with much the same frequency at one period of life as at the other, as it gives rise to the same morbid appearances it requires a very similar treatment."

Sidney Coupland (Paper read in Sect. of Ther. British Medical Association, July, 1891,) says: "Theoretically it might appear feasible that we should be able from our resources to influence the course of the disease, to prevent for instance, the stage of pulmonary engorgement from passing into that of hepatization; but for my own part I do not hesitate to say that no sufficient proof has yet been afforded of any such power to arrest or abort the pneumonic process; and that when such arrest seems to have followed our interference we are wrong in attributing it to the latter." The two indications to be met by treatment are the effects of the virus upon the system, and the local pulmonary lesion, and it resolves itself into the question whether it shall be anti-pneumotoxic, antipyretic or expectant. When the pneumococcus is introduced into the body of an animal it generates a poisonous substance to which Drs. Klemperer (*Berliner klinische Wochenschrift*) give the name of "pneumotoxin." This "pneumotoxin" sets up a febrile condition which lasts several days, after which another substance is found to have been produced, called "anti-pneumotoxin" which is able to neutralize the "pneumotoxin." The crisis of pneumonia—according to the Drs. Klemperer—takes place as soon as "anti-pneumotoxin" is produced in sufficient quantity to neutralize the "pneumotoxin." Probably this is the manner the antipyretic treatment acts by neutralizing the "pneu-

motoxin," and probably is a safer and better way than expectancy, or waiting the result of the combat between the "pneumotoxin" and the "anti-pneumotoxin."

Clinical Memoranda.

CELLULAR ATRESIA OF THE GENITAL FISSURE.

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ARREST of development in the genital furrow or fissure resulting in complete atresia of the vulva and anus is usually associated with anomalies in the internal organs incompatible with life.* In addition to the above, other varieties are met with consisting in adhesions of the opposed surfaces of the nymphæ. The latter form only will be briefly discussed in this article.

Analogous to the epithelial adhesions of the prepuce and glans penis frequently encountered in males during infancy and childhood, epithelial adhesions between the labia minora, though not quite as common are still a frequent anomaly. Bokai speaks of this condition as atresia vulvæ s. labialis or cellular atresia of the genital fissure. Simple adhesions between the labia minora, or epithelial agglutination, the term preferred by Jacobi, constitute the most frequent type of congenital malformation of the external genitals in the female during infancy and childhood.

The condition as a rule, does not give rise to any symptoms, its discovery is accidental, and creates needless alarm in the mind of the nurse or mother. In exceptional cases, the labia minora in the newborn are entirely adherent even beyond the urethral orifice. Surgical treatment will under such circumstances be required to relieve the obstruction to free urination. In less complete closure, micturition may be more or less interfered with.

In a case under my care the observing mother noticing some trouble in urinating, in examining the parts found the urine escaping from two openings. Her fears were relieved and the difficulty removed by separating the adhesions with a probe. Older children may complain of a burning during the passage of urine, or may grasp the genitals as though trying to remove some obstruction.

In a few instances, the writer has encountered the anomaly in several members of the same family, apparently a family trait. Holmes believes that if the trouble be neglected, retention of menses may follow in later life. In his opinion the anomalous condition constitutes the majority of so-called imperforate hymen. In the article on "Abnormalities of the Female Genital Organs" (Keating's *Cyclopædia*), Dr. Clara Marshall refers to the union of the greater and lesser labia, and adds that failure to separate the labia by early surgical interference may result seriously in adult life (difficult coitus and parturition).

The epithelial agglutination has been attributed to the irritation and subsequent inflammation induced by acid urine, want of cleanliness, or to the result of conditions analogous to the balanitis of male children.

The non-existence of these factors in the larger number of cases makes us look for a more plausible explanation, and this is found in the imperfect cornification of the cells produced by the rete malpighii (the condition existing in the foetus).

Generally observed during the first or second year, in one instance I met with it in a girl eight years old.

In making an examination of the parts in these cases, when the thighs and labia majora are separated, it seems as though the mucous membrane of the one side was continuous with that of the opposite labia minora. The vaginal orifice is bridged over, and the perinæum is apparently continued forward as far as the meatus, greatly resembling the male perinæum. In a marked example which came under my observation but recently at the Vanderbilt Clinic in a child eight months old, and which

I was able to demonstrate to some of the members of the class, the parts were adherent up to the hood of the clitoris, a small opening existing opposite the meatus through which the urine escaped. The mother's attention had been directed to the parts by the difficulty experienced in urinating, and by pain manifested when the child passed water. The line of apparent fusion is at times quite firm, and when the parts are stretched becomes defined as a whitish line or band. As a rule, the adhesions are incomplete, a firm lip or fissure being found either anteriorly, just below the urethral orifice, or in some other part of the line of adhesion more posteriorly. At times the fissure may not be observed until urination takes place as in the first case cited above. Ordinarily the atresia is easily remedied, and the adhesions are readily broken up either by traction laterally, or by introducing a stiff probe or director into the opening just below the urethra in a downward direction as far as the posterior commissure. The instrument is then pressed forward, and the line of union becoming prominent is divided by a blunt instrument, or if the adhesions are very firm, a knife may be necessary, the latter, however, is rarely required. The parts are then bathed two or three times daily with a mild antiseptic solution, and a little pledget of cotton or lint introduced during the next few days. The separation of the adhesions is attended with little or no hæmorrhage, but a drop or two of blood showing itself.

A CASE OF STENOSIS OF THE LARYNX, IN WHICH THE INTUBATION TUBE WAS RETAINED NINE MONTHS; RECOVERY WITH GOOD VOICE.

BY DILLON BROWN, M.D.,
New York.

LILLY MAGILL, æt. three years and three months, was seen by me for the first time on December 13, 1890, at the invitation of Dr. S. B. Allen. On December 1st, her

brother Arthur (seven years old) was taken sick with diphtheria of the tonsils and pharynx, but made a rapid recovery. In the mean time, on December 4th, Ella (thirteen months old) had an attack of membranous laryngitis, which grew progressively worse until December 9th, when she died of asphyxia, although at no time was there any evidence of pseudo-membrane either in the nose or pharynx.

Intubation was done on Lilly, December 13th, at 7 P.M., seven days after the first appearance of laryngeal symptoms and two days after marked dyspnoea was present. The operation relieved the dyspnoea perfectly, and she soon fell into a sound sleep and slept almost continuously for thirty hours. A small piece of pseudo-membrane was coughed up at the time of operation, but at no other time during the progress of the case was any membrane visible either in the sputa or in the nose or pharynx. The treatment consisted of plenty of stimulants and nourishment with the sublimation under a tent of fifteen grains of calomel every two hours. At the end of five days, the interval between the sublimations was increased, and finally, at the end of the second week, they were omitted. At the end of seven days and a half, the tube was removed, but the obstruction returned so rapidly that we were compelled to reinsert it in fifteen minutes. It was again removed on the 24th of December, but she could breathe without it only four hours. In another week it was removed; but after a few days the dyspnoea returned and at the end of nine days the tube was reinserted. It was again taken out in two weeks (January 23d); but at the end of thirteen days the laryngeal obstruction was so advanced that it became absolutely necessary to relieve the child's dyspnoea. It was impossible to insert a full-sized O'Dwyer tube without using more force than was safe, while the smaller tube did not relieve the dyspnoea, therefore, without an anæsthetic, I did a tracheotomy, with the help of Dr. Allen (February 5th).

The incision was made through the cricoid cartilage and below it. There was marked stenosis of the trachea itself, which did not extend its full length, as was shown by the fact that the relief to the dyspnoea was not complete until the cannula had been pushed down for a certain distance. At the time of the operation, only the inner tube of the cannula could be pushed into the trachea where it fit very tightly; but the next day, after the stretching and pressure of the inner cannula during the night, no diffi-

culty was found in inserting the regular double tracheotomy tube.

On March 9, 1891, at the Babies' Hospital, through the courtesy of Dr. L. E. Holt, I removed the tracheotomy tube, and after dilating from below with sounds, I put into the larynx the regular three-year O'Dwyer tube. On May 20th she had a pneumonia from which she made a good recovery, wearing the tube during the whole attack.

The tube was removed every month or two, but it was always necessary to reinsert it after a short time, usually within an hour. At no time was it possible to get a laryngoscopic examination of the larynx on account of the struggling and objections of the patient; but a digital examination at this time demonstrated the presence of granulation tissue projecting over the edge of the tube, which explained the rapid return of the dyspnœa when the tube was taken out of the larynx.

At the suggestion of Dr. O'Dwyer, a tube was constructed, in which the vertical diameter of the head was greatly increased, so that the tube stood higher in the larynx and brought pressure to bear upon this exuberant tissue. When this tube was removed in July, the child could breathe very well without it; but remembering our former experience, it was thought wiser to reinsert it for a time. This tube was removed in the early part of September by Dr. O'Dwyer, during my absence in the country, and since that time there has been no return of the dyspnœa. The patient is now perfectly well, and has a good voice, which, however, at times, has rather a harsh quality.

THE AFTER-TREATMENT OF INJURIES AT THE ELBOW-JOINT.

BY ROBERT JONES, F.R.C.S.,

Liverpool, England.

AND

JOHN RIDLON, M.D.,

New York.

April 23, 1891.—Female, nine years old, suffering an injury to the right elbow eight months ago, which the attending physician states to have been a "fracture of the coronoid process of the ulna with displacement of the

radius and ulna backward." The case was treated *secundum artem* for about four weeks when passive motion was commenced. This consisted in forcibly flexing and extending the forearm on the arm twice daily to the extreme limit of toleration for now over seven months, and of full flexion and extension under an anæsthetic twice weekly for four months and once every two weeks since that time. The joint has steadily become more stiff, more painful and more swollen. The forearm is now held flexed on the arm at a right angle and there is no perceptible motion at the joint. Attempted motion causes much pain and demonstrates intense involuntary muscular spasms. There is atrophy of the muscles of the arm and forearm, the joint is enlarged apparently to about twice its normal size, the superficial veins are dilated and none of the usual bony outlines are apparent to sight. Palpation about the joint is painful, all grooves and normal depressions are filled by a pulpy swelling, the bony outlines can scarcely be felt, and the nature of the original injury whether fracture or dislocation or both, and the extent of its reduction cannot be made out or even guessed at.

Treatment consisted in slinging the forearm in a halter with the hand as near the neck as it could be brought without pain; the slack in the halter was taken in every few days and at the end of two-and-a-half weeks, on May 12th, the hand touched the neck. In that position the halter was fastened and remained to the end of treatment. Motion at the joint was not tested till September 29th, a little over five months from the commencement of treatment. At that time it was found that the arm could be extended to nearly a right angle without pain or muscular spasm till that point was reached. There was no tenderness to gentle palpation about the joint and little of the pulpy swelling remained. The next examination as to motion was on March 25, 1892, eleven months and two days from the beginning of treatment. There was no enlargement of the superficial veins, no swelling to sight or touch, no tenderness to thorough palpation, the forearm can be flexed to the normal extent and extended to 100 degrees without pain or muscular spasm and pronation, and supination remain normal. Dr. B. F. Curtis examined the joint and made out the following bony abnormalities: Head of the radius lies directly below the external condyle, so that the cup shape of its articular surface can be distinctly felt, and the olecranon seems to have been broken at its base and united at an angle with

the shaft being drawn up behind the humerus. Treatment discontinued and the patient directed to use the arm as much as she chooses, no passive motion advised or permitted.

This case is a marked illustration of a very considerable number that have come under our observation where chronic joint disease has supervened upon the use of passive motion, with or without immobilization in the intervals of motion, or the lack of efficient and uninterrupted immobilization of joints fractured, dislocated or otherwise injured before a perfect cure has been effected. The forcible passive motion of an unsound joint delays its recovery and if persisted in may, and in this case as we believe did, induce a chronic inflammation which in its symptoms, course and results, with or without treatment, cannot be distinguished from a tubercular joint. The forcible passive motion of a sound joint may be and often is a justifiable procedure for the sake of gaining an improved position of the member. But it must not be lost sight of that this forced motion induces unsoundness, which unsoundness, unless treated by immobilization until cured, may be expected to lead up to chronic joint disease. We believe that repeated passive motion of a sound joint, if gently made so that to cause no pain, avails nothing more than the voluntary use of the joint; but if made beyond the limit of producing pain, we believe it is wholly without justification. One could hardly expect to find a surgeon more persistent and thorough in the carrying out of passive motion than was the attendant upon this child for the eight months previous to her coming under our care, or a patient and family more submissive and long-suffering. The passive motion resulted in an absolutely stiff joint. Neither would one expect to find a patient who will submit more willingly and patiently to prolonged immobilization than the one reported—the result of which immobilization for eleven months has been that the stiff joint has regained flexion to the normal and extension to 100 degrees, with every prospect of ultimately regaining normal extension.

A CASE OF ULCERATION OF THE RECTUM
IN A CHILD.

BY GEO. N. ACKER, A.M., M.D.,

One of the Attending Physicians at the Children's Hospital and the Garfield Hospital,
Washington, D. C.

JOHN KELLY, white, male, *æ*t. five years, was admitted to the Children's Hospital July 25, 1891, from the St. John's Orphanage. For more than a year he had been subject to attacks of dysentery. For two months previous to admission he had had from two to four bloody movements each day. No further history could be obtained, except that before the dysentery commenced he was in a good condition.

When admitted he was well nourished; tongue dry, coated in centre and hyperæmic about edges; appetite fairly good; no pain in abdomen or tympanites.

On examination with speculum the whole mucous membrane of the rectum was found congested. Just inside of the sphincter there were many small ulcers and fissures. Several large ulcers (two inches in length and one-third inch in width) were situated from three to five inches from the sphincter. He was put on sterilized milk and given three grains of the citrate of iron and quinine three times daily. The rectum was ordered to be irrigated four times daily with a saturated solution of boracic acid and a suppository of iodoform, gr. ij, and subnitrate of bismuth, gr. v, to be inserted after each irrigation. Rest in bed.

July 26.—10 stools, bloody, and large clots.

“ 27.—5 stools, bloody, no clots.

“ 28.—4 stools, streaked with blood, also small clots.

“ 29.—6 stools, dark green, with clots.

“ 30.—3 stools, very small clots, little blood.

“ 31.—3 small stools, little blood.

Aug. 1.—6 very thin stools, clots in one.

“ 2.—4 dark, and mixed with blood.

“ 3.—3 dark, and mixed with blood.

“ 4.—3 stools, two thin with large clots, one dark and thin without blood.

“ 5.—4 small stools.

Has no pain or straining with movements. General character of stools improved. Tongue has a better look. On examination with speculum the rectum was found to contain fewer ulcers. The large ones were smaller in

size and presented a healthier appearance. The mucous membrane was less congested. Solution of nitrate of silver (10 grains to the ounce) was applied to the ulcers.

Aug. 6.—5 large, bloody stools with clots.

“ 7.—5 stools, one all blood, others containing clots of blood.

“ 8.—3 stools, one containing no blood.

“ 9.—4 stools, two without blood, one formed.

“ 10.—5 stools, dark, with clots of blood.

The suppositories were ordered to be stopped. Solution of nitrate of silver (one grain to the ounce) to be used in the morning, after the rectum was washed out with warm water, and saturated solution of boracic acid to be used the same way at night.

Aug. 11.—4 stools, dark, with clots of blood.

“ 12.—5 stools, blood in one, others formed.

“ 13.—6 stools, two half formed, others contained blood.

“ 14.—5 stools with blood, one contained large lumbricus.

Half drachm fld. ext. sennæ et spigelia night and morning, but no more worms were passed.

Aug. 15.—3 stools all containing blood.

“ 16.—2 stools, half formed, some blood.

“ 17.—4 stools, no blood.

“ 18.—8 stools, two contained blood, improving in character; tongue clean.

“ 19.—11 stools, one with clots of blood.

“ 20.—4 small stools containing blood.

“ 21.—4 partly formed, some blood.

“ 22.—4 thin stools mixed with blood.

“ 23.—2 stools, one containing blood.

“ 24.—3 stools with very little blood, stools very much improved; general condition better.

“ 25.—4 stools half formed, no blood.

“ 26.—2 stools half formed, no blood.

“ 27.—3 stools half formed, no blood.

Aug. 31.—For three days has had two to three well-formed stools of good color, and no blood. Boy much stronger; all local treatment stopped, and given solid food. Tonic continued.

September 10.—One stool daily, good color; allowed to get up. Half drachm elix. ferri quiniæ et strychniæ three times daily.

September 18.—Plays around with other children; appears well and happy.

September 19.—Five loose stools with blood and mucus. Put on sterilized milk \mathfrak{Z} ij every two hours. Rectum irrigated with saturated solution of boracic acid followed by an injection of \mathfrak{Z} ij of a solution of tannic acid and starch (\mathfrak{Z} ss to \mathfrak{Z} j of starch water) twice daily. Subnitrate of bismuth and pulv. pepsin comp. aa gr. iv, four times daily. To be kept in bed.

Sept. 20.—Only three movements, very little blood.

" 21.—Four stools, only trace of blood.

" 23.—One stool, no blood.

" 26.—Five half-formed, dark stools.

Oct. 4.—Only two to three stools daily. Better in character. Same treatment continued.

Oct. 6.—Three dark-colored, partly formed stools, no blood. Irrigation stopped. Powders continued three times daily, a teaspoonful.

Oct. 8.—Allowed to get up, and put on semi-solid diet.

" 10.—Three soft, dark and offensive stools.

" 11.—Two soft, dark and offensive stools.

" 12.—One thin, dark stool.

" 13.—One well-formed stool with small amount of blood.

" 14.—Three large, soft, dark stools.

" 15.—Three large, soft, dark stools.

" 20.—One well-formed, nearly normal stool daily.

A speculum examination made to-day and no ulcers found in the rectum. In the places where the large ulcers existed there were narrow, dark ridges about two lines in width and two inches long. The mucous membrane had a healthy appearance, and there were no ulcers or fissure about the sphincter. Dr. S. S. Adams examined the patient with me.

April 1, 1892.—The boy has improved in every way since the last notes were made. The bowels are normal in frequency and character. He has gained in strength, and is no longer under medical treatment. During the attack the temperature was normal. Pulse from 80 to 90, and respiration from 19 to 22 per minute. Much of the good results in this case was due to the active and intelligent coöperation of the resident physicians, Drs. Kalb and Wellington.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, April 14, 1892.

WILLIAM P. NORTHRUP, M.D., *Chm'n*; FLOYD M. CRANDALL, M.D., *Sec'y*.

Ulcer Originating in a Burn Healed only by Antisyphilitic Treatment.—Dr. Mary Putnam Jacobi related the history of a child four years of age which had sustained a burn on the upper part of the thigh and was treated for a time in Bellevue Hospital, but as an ulcer, larger than the original burnt surface, would not heal, it was taken home. It then came under Dr. Jacobi's care, who succeeded by local treatment in reducing the size of the ulcer, but it would spread again. Skin grafts were applied and took, but later they broke down and the ulcer reached a diameter of six-and-a-half by four-and-a-half inches. Its appearance was syphilitic, yet there was no other evidence of syphilis. It was finally induced to heal by constitutional antisyphilitic treatment in addition to local applications. Mercurial ointment alone had failed.

Empyema with Dulness but no Fluid.—The Chairman presented a specimen illustrating a possible error in diagnosis. An infant had dulness on one side of the chest which was supposed to be due to the usual cause, pleurisy with effusion, probably empyema. On aspiration, however, only a few drops of pus could be withdrawn; no fluid. The autopsy showed that the dulness had been due to an exudate on the costal pleura so extensive and thick that it resembled a supernumerary lung filling the concavity formed by the ribs on that side. There were a few foci of softer fibrinous exudate containing a little pus, not sufficiently fluid to run. The possibility of such a condition should be borne in mind when one failed to withdraw fluid after basing a diagnosis of pleurisy with effusion on one-sided dulness.

A complete diphtheritic cast of the trachea was presented.

Case of Tumor of the Kidney.—Dr. Northrup showed, in the absence of Dr. O'Dwyer, a patient of the latter, who had a large tumor of the left kidney, evidently a sarcoma. The child was three years old; was brought to the founding asylum without definite history. On examination this tumor could be felt and a bulging seen. The urine contained blood and some casts. Unless removed the tumor would, if it followed the usual course, continue to grow, the child would emaciate and die. He believed that there had been a fatal issue in all of a number of cases reported by Dr. A. Jacobi. He mentioned one case which had been operated upon successfully.

The Practitioner's Anatomy of the Respiratory Passages Applied to Intubation, Laryngotomy, Tracheotomy and Bronchotomy.—Dr. J. E. Kelly read a paper on this subject, made demonstrations and exhibited charts. He said the paper was intended rather as an application of his own observation and experience to the needs of the practitioner, that he had ignored many structures of great interest to the anatomist and the embryologist. The view of the subject to which he would give special prominence was the mechanical, as it was of so much more importance to the general practitioner than the vast amount of anatomical detail to which he was treated during his education without being supplied with any clew by which he might render it serviceable.

The anatomy of the child was, with very little variation, identical with that of the adult. One structure only, the thymus, which reached its greatest development in the child, caused any important modification of the region treated of. Anomalies in this region were insignificant, consisting of only two examples, namely, the thyroidea ima, or the middle thyroid artery of Neubauer, which arose from the aorta or the innominate artery and the middle lobe of the thyroid. It was only in the hands of careless or unskilful operators that these structures were liable to cause any difficulty, for if the operation were performed as all operations should be, in the manner of a formal dissection, but rapidly, they were easily discovered and dealt

with. Dissections could be performed as naturally and almost as bloodlessly in the living subject as in the cadaver, and even with greater facility in younger patients. The more an operation resembled a dissection the more satisfactory it was to the surgeon and the safer to the patient. Hap-hazard surgery was nothing but a lottery in which fools played for their patients' lives.

In the quiescent state the posterior surface of the larynx and trachea from the epiglottis to the bifurcation, corresponded with and adapted itself to the contour of the anterior surface of the spinal column from the third cervical to the fourth dorsal vertebra. The lower portion of the pharynx and œsophagus, which occupied little space, were the only mechanically important structures intervening between the trachea and the spinal column. Although subject to variation, the most prominent point of the anterior convexity of the cervical spine was situated in the vicinity of the fourth vertebra. Immediately below this point the contour swept backward abruptly before merging into the dorsal concavity, which was most marked in the neighborhood of the sixth vertebra, consequently the larynx and trachea described a faintly sigmoid curve, and the latter receded rapidly from the surface as it descended in the neck. In the adult the upper margin of the manubrium sterni was two inches from the anterior surface of the vertebra upon which the trachea lay. The planes of the sterno-mastoid muscles and the laryngo-tracheal tube intersected.

In intubation the approximation of the glottic surface to the spine increased the probability of the tube being passed into the pharynx and rendered its introduction into the larynx more difficult owing to the narrow glottis being situated anteriorly. In low tracheotomy the osseous relations were the primary factors in the stratification of the fasciæ and the formation of the two distinct spaces overlying the tube.

Laryngotomy was so undesirable an operation that one was almost tempted to ignore its anatomical points, but remembering that on rare occasions urgency indicated its

adoption in adults, the author devoted a few words to it in that relation.

The hybrid operation, laryngo-tracheotomy, was also considered unjustifiable for several reasons, among others being that of danger of necrosis of the cartilages.

The author regarded the applied anatomy of tracheotomy as, perhaps, the most important portion of this investigation, owing to this operation being the most frequent which we were called upon to perform, and consequently, he said, that which was obscured by the most contradictory views.

Briefly stated, all the external operations on the respiratory passages were performed between the hyoid bone and the sternum in the mesial line between the sterno-hyoid and sterno-thyroid muscles of the opposite side. Only one, low tracheotomy, was below the isthmus of the thyroid.

In the anterior cervical region the deep cervical fascia was divisible into two layers, the superficial and deep, and were continuous relatively with the fascia on the anterior and posterior surface of the sternum. Hence they were distinguished as the presternal or superficial and the poststernal or deep layers. In the lower portion of the neck a distinct wedge-shaped interval, Burns' space, existed between the two layers. The poststernal layer was rather complex, being continuous with the fascia covering the posterior surface of the sternum and lining the anterior mediastinum below the region of the sterno-thyroid and sterno-hyoid muscles, it necessarily followed that it lay between these muscles, or rather it consisted of two layers between which these muscles were situated. Here the author pointed out the analogy to which he had before called attention existing between the suprapubic and the suprasternal regions.

In the neck the anterior space contained inferiorly areolar and fatty tissue, the anterior and transverse jugular veins and some small arteries derived from branches of the subclavian. The second and deep space, continuous with the superior mediastinum, contained the left in-

nominate and the inferior thyroid veins, which formed in front of the trachea the venus plexus of Cloquet, the cervical prolongation of the thymus and the isthmus of the thyroid. Here we also found small arterial branches and occasionally the thyroidea ima artery of Neubauer. For a distance of half an inch or more below the isthmus the space was not potential. As previously mentioned projection of the air-passages brought the different laminae into contact and obliterated the intervals. The fusion of the fasciae was complete above the isthmus. The isthmus of the thyroid being enclosed between two deeper fasciae, it could be easily separated from the trachea when the last or tracheal sheath was raised or drawn downward.

In the child the thymus extended from the isthmus of the thyroid into the anterior mediastinum even as far as the level of the third costal cartilage. Its shape inferiorly varied much, but the superior portion was rather constant and consisted of two lobes which formed a mesial body extending across the entire space corresponding with the interval between the sterno-mastoid muscles and the mediastinum. From the central portion the processes passed upward in close apposition on the tracheal fascia and terminated within a short distance (half an inch) from the isthmus of the thyroid body to which they were attached by two ligamentous bands. The consequence was that only a very limited portion of the trachea was available without preparation for the performance of inferior tracheotomy. This space could be most easily reached and demonstrated by dividing the tissue immediately below the isthmus and between the previously described ligamentous bands. Sometimes the isthmus was out of its usual position.

Bronchotomy.—Speaking of bronchotomy the author said that, considering the immediate fatality or ultimate evils resulting from accidents calling for it, he was inclined to think that an operation would be justifiable inasmuch as he had not discovered any obviously insuperable anatomical or mechanical difficulty.

Two or more ribs would have to be divided vertically. The incision might be carried through the costal cartilages or through the ribs internally to the mammary line. On anatomical and mechanical grounds he considered the latter incision preferable, as the internal mammary artery would thus be avoided and the costal vessels were smaller in this position, while, mechanically, the elasticity of the cartilages more easily permitted the demonstration of the site of the operation, and the continuity of the costal pleura with the covering of the pericardium afforded an excellent guide to the root of the lung. Whether the inner or the outer incision was selected it must include the second, third and probably the fourth ribs. In the young and elastic thorax the parietes might be drawn aside sufficiently without further section, but when the walls were rigid and the thoracic cavity deep, the intercostal structures in the superior and inferior intercostal spaces involved in the incision must be divided. Here alone was situated the anatomical disadvantage to the external incision which consisted of the important vascular structures lying behind the inner extremity of the first intercostal space, the internal mammary artery being that in most imminent danger. They could be avoided, however, by confining the incisions to the intercostal muscles and fasciæ, a limitation which was not disadvantageous as the pleura closed freely over the subjacent structures.

On the right side the relations were from above downward, bronchus, artery and vein; and on the left side artery, bronchus and vein, while on both sides from before backward they were vein, artery and bronchus. The bronchus was the most posterior structure in each root. It lay at the upper margin of the right root, overlapped by the pulmonary artery, which was the structure requiring most careful attention, which at the same time would serve by its pulsation as a valuable guide. On the left side, while still behind the artery, the bronchus could be approached more easily to the lower margin of this vessel, which must be drawn upward and the vein downward to expose the bronchus which lay behind and between the

two vessels. The portions of the roots available for operation lay immediately external to the pericardium which led us directly to the left root, but on the right side the superior vena cava, before piercing the pericardium, lay in close contact with it and anterior to the root of the lung which it overlapped. It would appear at first sight that manipulation of the important structures which formed the roots of the lungs would be necessarily fatal, but the author thought the comparatively insignificant bronchial arteries would constitute the greatest danger in the operation. It was very possible that a wound inflicted upon one of these vessels arising directly from the aorta would be followed by a proportionately alarming flow of blood.

Intubation.—Speaking of intubation, he said that the more satisfactory method of seeking for the glottis was by passing the finger well into the lower pharynx until the receding cricoid cartilage was felt, on the upper margin of which were situated the movable nodules, the arytenoid cartilages. Immediately above and in front of these in the mesial line was the glottis. It should be particularly remembered that the surface of the larynx which contained the glottis did not look upward, but almost directly backward, and consequently the handle of the introducer should be elevated when the tube arrived at the glottis in order to direct the point forward toward the anterior wall of the larynx in the vicinity of the crico-thyroid space. Failure to introduce the tube was most frequently due to the point being directed downward into the pharynx owing to neglect of the detail just mentioned, or the impaction of the tube in the left ventricle owing to the long axis of the tube not having been maintained parallel to the mesial line.

Dr. H. D. Chapin remarked that the very oblique position of the trachea in children made it difficult to get into that tube and constituted a point in favor of intubation.

Dr. Berg inquired why not perform bronchotomy posteriorly.

Dr. Kelly replied that to divide the ribs posteriorly would interfere most with the integrity of the thorax, the

ribs here were closer together, the approach would be through a narrower space; besides, posteriorly, the bronchial arteries were larger.

The Chairman remarked that Dr. O'Dwyer, and he agreed with him, had found the narrowest space in the respiratory tract in the child to be not between the vocal cords but within the cricoid ring. To obviate the tendency of the end of the tube to engage in the space between the true and false vocal cords Dr. O'Dwyer had lately had the lower end of the tube made bulbous.

Dr. Kelly remarked that the former style of tube was rendered practically bulbous by turning it obliquely before getting to these ventricles.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Shufeldt, R. W.: *Thirty-five Hundred Comparative Observations on the Pulse, Respiration and Temperatures of Children.* (*N. Y. Med. Jour.*, 1891, liv., 258.)

The paper is based upon a careful observation of six children, the pulse, respiration and temperature were accurately taken every morning and evening, and these observations were made comparative with the temperature of the ward noted at the corresponding times, and with such other atmospheric changes in their environment as would be likely to influence the states or other physical condition of the children.

A brief summary of the results showed :

1. The variations in the temperature of a child, both during an attack of rubeola and for a long time afterward, as compared with its pulse and respirations.
2. The effect of the temperatures of the ward in cases of rubeola.
3. A normal curve of rubeola unaffected by treatment, and the course of the temperatures, pulses, respirations, and so forth, for a long time afterward.
4. A long curve of normal temperatures compared with the pulse and respirations, and showing the effect of exercise and atmospheric temperatures on the physical conditions.

5. A curve showing rubeola followed by cholera infantum, with comparisons of pulse, respirations and atmospheric temperatures.

6. The various effects produced on the temperatures, pulse and respirations in different children by the variations of the temperature of the surrounding atmosphere in health and disease.

Washburn, H. H.: *The Causes and Prevention of Diphtheria in Cities*. (*Med. News*, 1891, lix., 262.)

We are at this time unable to state with any certainty that this or that micro-organism is the specific cause of diphtheria, or even that the disease is of microbic origin at all. Indeed, much evidence has been adduced that tends to prove that the virus of the disease is not a specific germ, and the opinion is held by at least a few good observers that cases may arise from a combination of unsanitary environments not fully determined. Among many facts are the frequency in which it is impossible to trace the first case in an outbreak to contagion; cases of the disease regularly appear in greater numbers during the winter months, a period relatively unfavorable to the growth of the lower forms of both animal and vegetable life. The disease is as prevalent in rural districts as in cities and towns. The disease, once having arisen, spreads by contagion in public places and in private houses.

While reluctantly compelled to admit that we are still ignorant of the *materies morbi* of diphtheria, we are fortunately able to speak with great positiveness as to the means to be adopted in order to limit its spread. All unsanitary environments should be removed, the soil should be drained so that cellars should be free from dampness; decaying animal and vegetable matter should be removed; the thorough ventilation of enclosed spaces, of the cellars and rooms of dwelling houses, should be secured; the source of water supply should be investigated, a supply of impure water being a no less potent factor in the causation of disease than an impure atmosphere. Any locality in which attention is paid to these matters will generally exhibit a mortality below the average for the whole community; if these precautions are neglected the reverse will be the case.

The environment having been rendered as favorable as possible, the other measures to be enforced in limiting the spread of diphtheria may be summed up in the two words: *isolation* and *disinfection*. The length of time during which isolation should be maintained is an important

question. At a meeting of the Society of Public Hygiene of Paris last year it was decided that a child should not be readmitted to school in less than forty days from the date of the onset of the disease. Active diphtheritic virus can remain in the mouth for a long time after the malady is cured. Consequently diphtheritic patients should only be allowed to resume their ordinary course of life when they are no longer bearers of the bacillus. When families are so situated as to render it impossible to keep the sick in a separate apartment, the other members of the household should use a gargle of a one per cent. solution of creolin four or five times a day.

In case of death from diphtheria, the body should be immediately wrapped in a sheet saturated with a 1.3000 solution of mercuric chloride and should still remain isolated. Funerals should be strictly private, no one being admitted to the presence of the body except those who have already been exposed, and the clergyman whose duty calls him to such places.

Disinfection is not less important than isolation in limiting the spread of diphtheria. The air in the sick-room should be kept as pure as possible. The only appropriate disinfectant for the room occupied by a diphtheritic patient is *pure air*, hence the room should be thoroughly and systematically ventilated. The discharges of the patient should be disinfected, and especial care should be given to the discharges from the nose and throat, which should be received into cloths which immediately after having been used are to be consigned to the flames. The clothing and bedding used about the patient can best be disinfected by thorough boiling for half an hour or more ; or by immersion for four or five hours in a 1.2000 solution of mercuric chloride. The room should be disinfected by burning three pounds of sulphur, in the presence of moisture, for every thousand cubic feet of air-space. The fumes of the sulphurous acid should pervade the atmosphere of the room for at least twelve hours (twenty-four would be better), and then the room should be ventilated.

Stewart, Donald : Death from Chloroform. (*Brit. Med. Jour.*, 1891, ii., 894.)

The case was that of a boy, aged eleven, who had suffered from a decayed tooth in the left inferior maxilla. His mother took him on two separate occasions to a dentist, who tried to remove the roots of the tooth without any anæsthetic, but without success. The mother then

took the boy to another dentist, who consented to extract the roots if chloroform was administered.

The boy was prepared by diet, etc., for 11 A.M. on October 8th, and I administered chloroform on an ordinary towel. The roots of the tooth in question were successfully extracted and the boy began to struggle, and a little more chloroform was administered to enable the dentist to extract two other decayed teeth. This was done and the boy seemed all right.

The anæsthetic was given in an ordinary easy arm-chair, and while contemplating the removal of the patient to the bed he suddenly turned pallid. The breathing continued, but the pulse was lost. The boy was at once lifted into bed and every endeavor possible was made to restore him, but though the breathing continued for quite a minute from the onset of the ghostly appearance, the heart, which was evidently the organ that first failed, never acted again.

Stengel, Alfred: *The Airing and Exercise of Infants*. (*Babyhood*, 1891, vii., 342.)

Theoretically we should expect from undue exposure of children internal congestions, diseases of the lungs and of the intestines; and practical observations and statistics fully bear out the deductions of theory. It has been found in London, and it might just as well be found in other large cities, that a marked fall of temperature has following in its wake an increase of such diseases and an increase of infant mortality.

At what age, then, may a child be considered to have sufficiently developed and hardened to bear with impunity exposure to out-door air? According to Prof. Starr, whose authority in these matters is very high, a child born in spring or early summer should be taken out no sooner than the third month; one born in fall or winter not till the fifth. It is customary in this climate to set an earlier period, and very often no harm comes of it, but in the long run it will be best and safest to wait as long at least as Starr advises. No more erroneous idea could be entertained than that early exposure hardens the child and makes it the less likely to succumb to accidental diseases. On the contrary, indiscreet exposure, if it be not in itself the immediate cause of disease, breaks down the little power of resistance the child possesses, and renders it all the more apt to fall a victim to any disease it may contract.

The frequency and length of the exposure must be gradually increased from an outing of once a day of fifteen

minutes or half an hour in the most favorable weather at first, to twice or three times a day, and at last, when the child is nine or ten months old, to an almost constant residence in the open air. Neither must the value of sunlight be forgotten, not the broiling sun of the tropics nor the midday with us, but the genial and invigorating morning and evening sun of northern countries. The clothing must be such that exposure and chilling does not take place. In inclement weather and in winter when the temperature is quite low, the house is a much better place for young children than outside, and they must not be taken out at all.

The child needs very little exercise at first; and for some days after birth should be left wholly undisturbed and in a somewhat darkened room. It may be taken up a few times a day for a short time, but otherwise ought not to be disturbed. Rest and quiet are the needs of baby as well as mother. After the first week the child may be taken up oftener and for longer times. Whatever amount of exercise and whatever kind is given the child, the one requisite of extreme gentleness must always be observed.

When it is allowed to sit up, care should be taken that the back and head is well supported. The support to the head and back must be continued even after the child is able to creep about on the floor quite readily, and in placing the child in the baby carriage, the same point must be remembered in arranging the bed. After the child has learned to walk, the question of exercise needs little attention, except that it must be restricted if the child seems inclined to overdo the matter.

Knight, C. H.: *The Treatment of Hypertrophied Tonsils.* (*Four. Am. Med. Assn.*, 1891, xvii., 537.)

The treatment of enlarged tonsils may be divided into medical and surgical. The former may be dismissed in a few words, since clinical experience shows that the hypertrophied tonsil yields slowly, if at all, to internal medication, except, perhaps, in struma or anæmia. In such cases hygiene, diet and tonics may have a limited influence. The same is true of local applications resorted to for the purpose of promoting absorption.

The following enumeration includes most of the methods which have been or continue to be practiced. Some of them have long since been abandoned, while others have never found favor except in the hands of their promoters: 1. Electrolysis. 2. Massage. 3. Chemical caus-

tics. 4. Galvano-cautery puncture or ignipuncture. 5. Avulsion with forceps. 6. Ligation. 7. Enucleation by means of the finger. 8. The cold wire snare. 9. The galvano-cautery snare or amygdalotome. 10. Excision by means of scissors, the bistoury, or the guillotine.

In the large majority of cases, excision is the operation of choice. In tractable cases the knife may be used with safety, but it is difficult to see that it has any advantage over the guillotine. The latter, if properly handled, will give an equally good result, and is undoubtedly safer. The extirpation of the tonsil should be made as radical as possible for two reasons: 1. Tendency to recrudescence is lessened. 2. Danger of hæmorrhage is diminished.

There is no question that Mackenzie's modification of Phynik's well-known guillotine is incomparably superior to all other instruments. The addition of a fork to the guillotine not only complicates the operation, but adds to the difficulty of keeping the instrument aseptic. This instrument commends itself because of its strength, its simplicity, its safety and its effectiveness.

There no doubt exists some prejudice against the use of an anæsthetic in removing tonsils. Avoid profound anæsthesia, remove the tonsils in quick succession, immediately turn the patient upon the face, and fatal asphyxia cannot occur. In young children we should use ether or chloroform, not only to obviate mental and physical suffering, but, what is much more important, to enable us to explore the naso-pharynx at leisure, and if necessary to remove from that region those collections of lymphoid hypertrophy so often associated with similar overgrowths between the palatine folds.

Porteous, J. L.: Whooping-Cough Treated with Onabaine. (*N. Y. Med. Jour.*, 1891, liv., 345.)

This alkaloid has a formula of $C_{30}H_{46}O_{12}$, and is obtained by crystallization from a watery extract of the roots of the onabaïo, a plant nearly related to the *Carissa Schimperi*.

Hypodermically it is more powerful than when given by the stomach; $\frac{1}{60}$ grain so introduced is fatal to a man. From the experiments of Dr. Gemmell, the standard dose for a child under five years is $\frac{1}{1000}$ grain every three hours in solution. This dose usually lessened the number of coughs and whoops. In two cases, however, where the children were much prostrated by the violence of the cough, $\frac{1}{300}$ grain and latterly $\frac{1}{250}$ grain was given every three hours. This is equal to about $\frac{1}{2}$ grain daily, which

is nearly double the strength of the dose advocated by Gley, who estimates the maximum daily dose for an adult as one milligramme ($\frac{1}{85}$ grain).

Dr. Gemmell concludes that onabaine is of marked benefit in all stages of the disease. In the first stage it cuts short the attacks; in the second stage it reduces the violence and frequency of the cough and diminishes the number of whoops; and in the third stage it hastens convalescence.

The writer after giving the history of three cases, said that his experience of the drug was much the same as Dr. Gemmell's. The action of onabaine is evidently not cumulative. During the administration the pulse, temperature and respiration are slightly lower. It promotes the action of the skin after three or four days' treatment. The bowels act regularly, and the usual accompanying diarrhoea of whooping-cough is not, as a rule, present during the treatment. It, like strophanthus, increases the flow of the urine.

The appetite in all the cases in which I have used it was increased. The toxic effects are considerable slowing of the pulse and respiration, and I think the latter is the one to be particularly on guard against.

Editorial: The Spread of Diphtheria. (*Canadian Practitioner*, 1891, xvi., 502.)

We believe the following rules should be adopted to guard against these serious perils:

1. Isolate all patients affected with either follicular tonsillitis or diphtheria.
2. Report at once to the Medical Health Office.
3. Let the medical health officer make, or have made, a proper examination of the case—microscopical and bacteriological if necessary.
4. Keep the patients isolated until all doubts are removed in non-diphtheritic inflammations.
5. Let the isolation be rather extended in the so-called naso-pharyngeal diphtheria, because the poison lurks long in certain nooks, especially the follicles of the tonsils.

Currier, John M.: Whooping-Cough and its Treatment. (*Med. and Surg. Rep.*, 1891, lxv., 934.)

The following powder is used by insufflation four or five times a day in mild cases, and oftener in severe ones.

R Hydrarg. chlorid. corros.....	gr. i.
Pilocarpinæ	gr. x.
Cocaine hydrochlorat.....	gr. xv.
Ammonii chlorid.....	3 iiiss.

M. These should be reduced to an extremely fine powder.

Curtis, F. C.: Indications for Treatment of Diphtheria. (*Albany Med. Annals*, 1891, xii., 265.)

1. Isolation and disinfection.
2. Hygiene, so that the patient always breathes air as free as possible from disease germs, and as full as possible of oxygen.
3. Local destruction of the disease germs at the surface of the body—that is, in the mouth, throat and nose—and with it reduction of local inflammation.
4. Surgical relief of threatening asphyxia.
5. Relief of adynamia of organs, nerves and tissues, the result of absorbed poison elaborated by the germs of this disease.

Abbott, S. W.: The Distribution of Diphtheria in Massachusetts. (*Boston M. and S. Jour.*, 1891, cxxv., 561 and 588.)

So far as the writer's observations are concerned, they lend weight to the following conclusions :

1. That diphtheria is an eminently contagious disease.
2. That it is infectious, not only by the direct exposure of the sick to the well, but also through indirect media as clothing and other articles that have come in contact with the sick.
3. That the certainty of infection is not so great as in the case of some of the other infectious diseases, notably small-pox and scarlet fever.
4. That overcrowding, faulty ventilation and filthy condition of tenements favors its spread.
5. That the influence of defective plumbing is not proven.
6. That its transmission through public and private water supplies is not proven.
7. That its propagation is favored by soil, moisture, damp cellars and general dampness of houses.
8. That the poison may remain dormant in houses for a long period.

II.—MEDICINE.

D'Astros: Hydrocephalus due to Hereditary Syphilis. (*Mal. de l'Enf.*, 1891, 481, 543.)

There exists a hydrocephalus due to hereditary syphilis. It is difficult to establish, as yet, the frequency of this hydrocephalus. It would seem that this form of hydrocephalus is of earlier life than any other variety, the hydrocephalus due to tuberculosis in particular, not develop-

ing, generally, until after several months. In every congenital or early hydrocephalus (let us say occurring within the first three months) a syphilitic origin should be suspected. Sandoz observed the arrest of the hydrocephalus in one case after anti-syphilitic treatment. The child was finally lost sight of. Regarding the question of surgical intervention, puncture and drainage of the ventricle. Up to the present time, the results have been meagre since such intervention has been employed simply as a palliative measure. In the hydrocephalus due to syphilis surgical measures may render better service since we could combine with the palliative action of the drainage the directly curative action on the cause of the effusion of the anti-syphilitics.

Chauffard: Hepatic Syphilis ; Its Differences in the New-Born and in the Adult. (*Journ. de Méd. de Paris*, 1891, iii., 452.)

Hepatic syphilis is one of the many affections which assumes a special and quite different character in the infant. Ætiologically, syphilis of the liver in the adult is always an acquired disease. In infancy syphilis may be acquired—examples are frequent,—but the disease never elects the liver. In the infant hepatic syphilis is always hereditary. The pathogenic differences are more important. An adult has syphilis of the liver as he may have cerebral syphilis or syphilis of any other viscera, that is to say that the syphilitic germ attacks the liver or other viscera by the way of the arteries, a process of endarteritis. A syphilitic mother transmits the disease to the foetus by the intermediary of the placenta, and consequently the blood carrying the infection arrives in the first place in the liver of the foetus. This explains why hepatic syphilis at an early age is always diffuse and massive, the contrary of what we find in the adult. To compare the lesions in the infant and the adult we find great differences. In the first the process is essentially diffuse; in the second it is more variable, and we may say the liver is different at each section. The syphilitic liver of the adult is deformed—it is *bound up*. Its change in form may be extreme. On section bands of fibrous tissue correspond to the depressed parts, gummata to the projecting parts. This many-sidedness of the lesions distinguishes it. From the point of view of treatment, no matter what the form, specific treatment should be undertaken. The inunction treatment is much better borne by the infant than by the adult.

Foessinger: Epidemic Bright's Disease and Scarlatina at Oyonnax and in the Neighborhood. (*Gaz. Méd. de Paris*, 1891, viii., 496.)

In a report of forty-nine cases, classified as follows: Cases of epidemic, Bright's, with no case of scarlatina in the region, four; epidemic, Bright's, without scarlatina in the village but in neighboring villages, six; epidemic, Bright's, with scarlatina in the locality, thirty-nine, of which seventeen were plain cases of scarlatina, twenty-two masked cases, all but three of the last having symptoms of Bright's disease; the conclusions are:

First: Bright's disease may be epidemic and rage without scarlatina.

Second: It occurs at the same time with scarlatina and in the same forms as in the epidemic state, yet without scarlatina.

Third: During an epidemic of scarlatina the Bright's disease which complicates the scarlatina differs in no way from the preceding forms.

Fourth: All the intermediary forms between the acute and chronic forms of the disease may take place in the same epidemic.

Fifth: There is no difference of symptoms nor of the course of the disease between the usual chronic, Bright's disease, and the chronic and epidemic form.

Triboulet: Note on the Secondary Microbic Infection through Staphylococci in Chorea. (*Mal. de l'Enf.*, Paris, 1891, 562.)

A child of nine years, predisposed by heredity, maternal side, to rheumatism, had three attacks of articular rheumatism in four years. Each attack brought on, as if to terminate it, an attack of chorea. After the second attack of rheumatism there were persistent pericardiac lesions. Finally, in September, 1891, he had acute articular rheumatism, as typical as possible. In the course of this attack appeared for the third time the chorea (due to the rheumatism, it would seem, if it ever is). The pericardium underwent a third and last attack, which killed the patient. The autopsy revealed, by micro-biological examination, the existence of the same infection by staphylococci as in the case reported by Leredde. The case of Leredde's was as follows: In the course of a chorea in a subject of poor physical condition, cachectic, of nervous parents, but free from any rheumatic taint, hereditary or acquired, there appeared suddenly a mitral lesion which, in the course of a few days, became con-

siderable and positive, and was complicated farther by an aortic lesion. During fifteen days, from the 9th to the 24th of May, temperature of 38° - 38.5° , increase in size of the spleen, a little albumen in the urine—in short, a mild state of infection. The blood taken at this time by pricking of the finger, under conditions of rigid asepsis, and at intervals of several days, gave cultures of white staphylococci and one of staphylococcus aureus. From the 24th of May the fever fell and the cultures remained sterile. The child recovered from its chorea but retained an insufficiency of both mitral and aortic valves.

Blache, R.: Hypertrophy and Dilatation of the Heart in Adolescence or Cardiac Ecstasis of Growth. (*Mal. de l'Enf.*, Paris, 1891, 529.)

The principal cause of these cardiac dilatations may be considered the early development of the heart opposed to the late or insufficient development of the walls of the thorax. The treatment should respond to these indications and should moderate the over-activity of the cardiac movements and favor the increase of the capacity of the thorax. As special treatment of the heart the use of digitalis, with or without the addition of iron, of caffeine, and particularly the tincture of convallaria are recommended. The tincture of convallaria may be used alone or associated with iodide of potash. The diet should be tonic and such as to rebuild the patient. Wise gymnastics, appropriate to the age and the nature of the conditions, aid in the general development of the patient. Frictions of the skin, either dry or with alcohol, by the aid of a woollen glove, have been used with good results, and are to be preferred to hydro-therapy. During the gymnastic lessons massage of the trunk, of the chest and limbs, is to be employed both to exercise the functions of the muscles and to moderate the gymnastic exercises. Specially to be recommended are certain respiratory gymnastic exercises, which give the best results in developing the thorax and enlarging the chest.

Le Sendre : Report of a Case of Recurrence of Whooping-Cough. (*Mal. de l'Enf.*, Paris, 1891, 496.)

Report of one case of recurrence of whooping-cough: A child of ten years, who had undoubted whooping-cough, communicated directly from another case in the family, had a second attack, of which the signs were absolutely satisfying fifteen years later. In the second attack the

contagion was believed to be from a case of a child living in the same house.

Comty: Herpes Zoster in Children. (*Soc. Méd. de Hop. Mal. de l'Enf.*, Paris, 1892, x., 31.)

In children the eruption is the whole of the disease. In thirty-three cases observed twenty-one were girls, twelve boys. Among these thirty-three four were less than two years of age, twenty-nine had passed that age. The age of ten years was that at which the largest number of cases occurred. The disease showed itself more frequently in the summer months. It was rarely that the children afflicted failed to present something which might pre-dispose them to the disease. Nervous accidents or shocks before the appearance of the herpes were particularly noted. Among the occasional causes a traumatism, which preceded by three weeks a brachial zoster, may be cited. Another time vaccination was followed after eight days by the zoster.

Ollivier: Aphthous Fever in Milk Cows and Aphthous Stomatitis in Infants. (*Mal. de l'Enf.*, Paris, 1892, X., ii.)

In November and December, 1890, an unusually large number of children were observed to be affected with aphthous stomatitis. At this time aphthous fever was raging among the cattle in the environs of Paris. A good number of the patients came from the particular quarters in which the disease among the cows existed. Five of the children had been fed with the milk of affected cows. It may be recommended to look for such an origin of the stomatitis and to avoid the contagion to seek another milk supply or to boil the milk.

Evans, T. C.: Ophthalmia Neonatorum. (*Am. Prac. and News*, 1891, xii., 161.)

The eyes will have to be thoroughly cleansed every hour with some antiseptic wash, and in some cases even oftener. As a wash prescribe 1 grain of bichloride of mercury with 20 grains of sodium chloride to the pint of distilled water. To this may be added 1 grain of atropine if indicated. But cleansing with the antiseptics is not sufficient. To this must be added the nitrate of silver. Owing to the swollen condition of the lids they are easily everted and the solution applied either by a drop or brush directly to the palpebral conjunctiva. Any excess of the silver solution can be at once counteracted by immediately using the antiseptic wash. The strength

of the solution will vary from 2 to 10 grains to the ounce, and the frequency of its use from one to three times a day, according to the emergency of the case. I have on several occasions felt considerable uneasiness on finding very decided silver stains on the cornea caused by unskilful application of the solution, but they disappeared in a few days, and are, as far as my observation goes, never permanent. The disease generally lasts from three to four weeks, despite all attempts to cut it short. It is of especial importance to make a thorough examination of the cornea at the first visit; a task that is always difficult and often impossible without using lid retractors. If the cornea is cloudy or has opaque spots or a perforation, the parents' attention should be called to it at once and thus relieve the physician of the responsibility.

Pitts, Bernard: Tubercular Disease of the Tunica Vaginalis after Tuberculosis of the Testis. (*Lancet*, 1891, ii., 930.)

The specimen shown to the Path. Soc. of London, was taken from a boy aged five, with a large right inguinal hernia. During the operation for radical cure, the testicle was found to be enlarged and had several tubercular nodules on the surface. It was removed with its sac. While the child was under an anæsthetic several hard nodules could be felt in the abdomen above and to the left of the umbilicus. General peritonitis followed the operation, but the child made a good recovery. Microscopical examination showed tubercular nodules on the visceral layer of the tunica vaginalis and on the lower part of the sac. At one spot on the testicle these nodules were confluent and gave an appearance very similar to that of hernia testis. The spermatic cord and epididymis were normal. The nodules were tubercular in nature.

Railton, T. C.: Case of Hysteria in a Child Six Years of Age Following Influenza. (*Lancet*, 1891, ii., 809.)

Mary T., aged six years, was admitted into the hospital on June 4, 1891. Good family history. About the middle of May, every member of the family—parents and four children—had an attack of influenza. Mary had it far more seriously than any of the others; she showed the usual symptoms and is said to have been totally unconscious for about ten days. Since the attack she has slowly convalesced, and is now able to sit up in bed, but has neither walked nor spoken since the onset of the disease.

She lies in a very apathetic condition, but is perfectly conscious. A careful examination fails to detect any disease in either heart, lungs or abdomen. All muscles react normally to electricity, and there is no motor paralysis. She moves her head slowly from side to side in an imbecile manner and appears to take little notice of anything. Although she looks idiotic, it is very clear that she understands what is said to her. She is perfectly insensitive to the prick of a pin in any part of the head, body or limbs. When taken out of bed and held up under the arms she holds her legs at right angles to the trunk with the utmost obstinacy until compelled by physical exhaustion to allow them to drop. She made a rather rapid recovery under the use of the faradic current and cold shower baths.

Thomson, John: On Congenital Obliteration of the Bile-Ducts. (*Edinburgh Med. Journ.*, 1891, December, 1892, January, February.)

The main conclusions as to the ætiology and pathology of these cases may be summarized as follows:

1. In the great majority (if not all) of the cases there is to begin with, a congenital malformation of the bile-ducts due to defective development.

2. This malformation probably affects a considerable extent of the walls of the ducts, and may consist in narrowness of their lumen.

3. The interference with the outflow of bile thus caused, gives rise to catarrh, and finally to blocking and obliteration of the ducts, owing to the inflammatory process spreading to the walls of the ducts and gall-bladder.

4. This progressive inflammation goes on slowly spreading, the local condition getting gradually worse during many months.

5. The obliterated ducts or gall-bladder, or portions of them, may entirely disappear.

6. The obliteration generally becomes complete at an early but variable period of intra-uterine life, but occasionally it does not occur till after birth.

7. In a few cases the inflammatory process spreads to the peritonæum, and possibly the presence of inherited syphilis may favor this extension. The occurrence of peritonitis is probably always secondary to the blocking of the ducts.

8. When the lumen of the duct is so far encroached upon as to obstruct the free passage of bile into the intestine, "biliary" cirrhosis of the liver begins, which as it

goes on causes increasing interference with the most important functions of that important organ. The result of this is the setting up of a sort of chronic blood-poisoning which causes vomiting, spontaneous hæmorrhage and convulsions, and gradually leads to emaciation, diminished vitality and death.

A few suggestions as to the causation of some of the more interesting of the clinical phenomena may be recapitulated as follows :

1. The reappearance of the disease in several members of the same family can only be explained by the theory that a congenital defect of development is at the root of the mischief.

2. The fact that the onset of the jaundice is not at all contemporaneous with the blocking of the bile-ducts, and usually only begins several days after birth, is best explained by taking into account the effect on the liver cells exerted by the enormous changes in the hepatic circulation which occurs at birth in new-born children.

3. The presence of colored meconium in some cases, and of only white discharge in others, is due to the blocking of the ducts having occurred at different periods of intra-uterine life in the two groups.

4. When green matter is passed along with the colorless motions during the progress of the case, this is probably due to the chemical action of the contents of the bowel on mercury which has been administered to the child.

5. The tendency to spontaneous hæmorrhages is probably due to the occurrence of a state of chronic blood-poisoning.

6. The enlargement of the spleen, the convulsions and the vomiting are probably more or less connected with this same condition of blood-poisoning.

7. The fact that the children live as long as they do, and do not usually become emaciated early, is to be explained by the theory that the presence of bile in the bowel is not very necessary for digestion. When the nutrition and general health do begin to suffer, it is probably due to the interference which the secondary changes in the liver tissue are causing with the more important functions of the organ.

Taggart, H. D.: Diphtheria. (*Times and Register*, 1891, xxiii., 462.)

Begin with an efficient calomel purge. Once or twice during the progress of the case (give at night only) pulv..

ipecac gr. ii.-iv., potas. chlor. gr. ii.-viii. One to two drachms of the following mixture, diluted with an equal portion of water should be taken every hour ; to be used also as a gargle, if the patient is not too young to gargle: Place gr. v. potas. chlor. in a six-ounce vial, add gtt. x. ac. muriat. When effervescence has ceased fill the vial gradually with good ordinary water. This mixture is not poisonous.

Lloyd: Diphtheria. (*Times and Register*, 1891, xxiii., 460.)

The best drugs are :

1. Calomel. 2. Corrosive sublimate. 3. Sulphur. 4. Tincture chloride of iron.

The latter can be advantageously joined with the chloride of ammonium. A spray of lime, sulphur, eucalyptus and extract pancreatic is useful. If the heart is weakened, alcohol will sustain it better than either digitalis or strychnine.

Rosenberry, A. J.: Laryngeal Diphtheria and its Treatment. (*Therapeutic Gaz.*, 1891, xv., 741.)

The details are given of five successive cases, all of which recovered under the following treatment: Full doses of tincture of iron with small doses of chlorate of potassium, every two hours. Quinine sulphate, one grain, every two hours. Whiskey, from two to four teaspoonfuls, every hour. Sulphur was insufflated every two hours; and every half hour this formula was used in a good steam atomizer :

R̄ Ol. eucalypti.....
 Ol. terebinth.....
 Ol. vaselini.....

M. S. Use in atomizer every half hour.

Strock, Daniel: Diphtheria. (*Times and Register*, 1891, xxiii., 451.)

To my mind, prophylaxis is the true and, perhaps, only sure way of combating diphtheria after all. Local measures contemplate the use of germicidal agents, either in the form of spray or gargles, and by insufflation into the nostrils. General prophylaxis involves the supervision of the schools, both the week-day and sabbath-schools ; the consideration of whether or not the source of water supply is a disseminator of the disease ; the thorough disinfection of the clothes, surroundings and discharges of the patient, and careful isolation.

The treatment must be constitutional as well as local, and general constitutional measures include recumbency and nourishment. Feed systematically with a range of foods that are calculated to sustain the wasting powers of the system. When the patient refuses aliment, rectal enemata should be given. Constitution measures also include drugs to antagonize the anæmia and sustain the heart's action, as iron, quinine, strychnine and liberal quantities of alcohol, besides the heart tonics proper, like digitalis, strophanthus, spartein, caffeine, camphor and musk. Corrosive sublimate is considered by some to be the most important internal remedy.

Locally, the chief antiseptic is, perhaps, corrosive sublimate in solutions of 1.2000 to 1.10,000. Other articles of this class are peroxide of hydrogen, boracic acid, carbolic acid and salicylic acid. I have used peroxide of hydrogen in a large number of cases, and can say, basing the assertion on that experience, that in a case of true diphtheria it apparently exerts no beneficial influence upon the course of the disease. In one case, at least, where it was used in the nostrils, the effervescing action was observable through the lachrymal canal into the eyes, and was, no doubt, the means of the infection and destruction of those organs.

Braymer, O. W.: Address on Diphtheria. (*Times and Register*, 1891, xxiii., 447.)

In the first place, when a deadly infection of this character appears in a community, the public should be put on their guard, and all houses containing infected persons should be placarded. Stores should be closed when any person in the house is sick with the disease, drains and cesspools disinfected, all domestic animals excluded from the house, and clothing, bedding, etc., should be sterilized.

Careful antiseptic and tonic treatment, together with the best of nourishment and nursing, is all that can be done for diphtheria with our present knowledge of its pathology. It is a wise prophylactic measure to spray out the nasal passages; and in severe cases of laryngeal diphtheria, tracheotomy or intubation are the only reasonable resorts we have for relief.

But in this, as in other of our contagious diseases, a new treatment seems to be on the horizon of discovery. Bannatyne tells of good results that he has obtained by treating diphtheria with injections of erysipelas albumose. In this we have a battle between microbes, and this is the method that, no doubt, will be eventually accepted as the

true treatment of all contagious diseases caused by specific bacilli, such as tuberculosis, diphtheria, cholera, scarlet fever, etc., etc.

Stewart, W. B.: Membranous Croup. (*Times and Register*, 1891, xxiii., 455.)

It is an acute, specific inflammation of the laryngeal and superior tracheal mucous membrane, accompanied by a fibro-plastic exudation; constant fever; great dyspnoea, and usually terminating in death. Some authors claim that it is due to a specific microbe, similar to or identical with that of diphtheria.

The patient should be isolated in a room, the air of which is kept constantly moist with steam and at a uniform temperature. Insist on *absolute quietness*. All expectoration and cloths used about the patient's throat and mouth should be promptly burned. Internally the patient should receive quinine with either the corrosive or the mild chloride of mercury. To this treatment should be added the constant inhalation of medicated steam (ol. eucalyptol and tr. iodini comp.); and applications of heat or cold to the throat in the form of compresses.

Sustain the strength by most nutritious diet, given in small quantities at frequent intervals, and tonics. Avoid emetics and all depressing remedies. Failing in this, tracheotomy or intubation becomes necessary.

Marcus, H. D.: Diphtheria. (*Times and Register*, 1891, xxiii., 457.)

Constitutional treatment may be indicated to counteract arising complications, but to treat the disease proper *only local* medication will lead us to success. Many methods of treatment are recommended: the trichloride mixture of Dr. Waugh; the submembranous injections of chlorine water of Dr. Seibert; gargles of corrosive sublimate and carbolic acid or of carbolic acid, bromine and chlorine solutions; the local use of boracic acid, iodine, iodoform, salicylate of soda, nitrate of silver, peroxide of hydrogen and many others.

The general management requires perfect isolation of the patient in a moderately heated room; cleanliness and the use of disinfectants about the room, bed-clothing, etc. Supporting treatment must be resorted to from the beginning, and, though alcoholic stimulants should not be used at once, still they must be freely given when indications require their use. Good nutritious food should be regularly given, and if the patient is unable to swallow, enemata must be administered. A change of air, good diet and tonic treatment will hasten convalescence.

Fuller, J. R.: Case of Enteric Fever in a Child Aged Nine Months. (*Lancet*, 1891, ii., 1038.)

Violet H., aged nine months, was brought to the hospital on August 1, suffering from diarrhœa, sickness, headache, heaviness and crossness. The stools were of a thick and yellow nature. The child had been listless and had refused food for ten days or so. The skin was dry and felt hot; temperature 102° ; the tongue was dry and slightly furred. Abdomen slightly tympanitic; no pain except on deep pressure; no spots. The infant was worse on August 2, and death took place the next day.

At the post-mortem examination the heart was found to be normal, the cerebral vessels slightly congested and some fluid, slightly in excess, in the lateral ventricles. The kidneys and liver were normal. The spleen, bilobed, not enlarged, soft or congested. The stomach contained curds; the small intestine was red in the neighborhood of Peyer's patches; these patches were inflamed and elevated above the surrounding surface, and some of the lower ones were commencing to break down. The mesenteric glands were enlarged, and the solitary glands of the cæcum were abnormally prominent; the rest of the large intestine was normal, and there was no perforation of the gut, and no peritonitis.

Prince, Morton: How Long Should a Convalescent from Diphtheria be Isolated? (*Boston M. and S. Journ.*, 1891, cxxv., 691.)

In one case the patient was supposed to be well, and made a visit to a relative in Boston nine days from the date of his "getting up." One week after his arrival a child in the family was attacked with diphtheria and died. An outbreak of diphtheria in a hotel at Nantucket followed the arrival of a person just recovered from diphtheria and pronounced well by the attending physician. One of these cases, when supposed to be well, carried it to a hotel in town. Three cases of diphtheria in one family, closely followed the advent of a nurse who had just come from attendance on a fatal case.

I think that evidence goes to show that poison is retained in the mucous membrane longer than is generally considered to be the case. In lieu of definite knowledge, I have adopted the arbitrary rule of advising quarantine precautions for one week after the patient appears to be perfectly free from disease. This seems to be a fairly safe rule and one that is desirable.

Railton, T. C.: A Case of Congenital Heart Disease. (*Med. Chronicle*, London, 1891, xv., 173.)

Henry D., a pale and emaciated infant fourteen months old, had always been ailing, and his lips and finger ends had been blue since his birth. Occasionally he had paroxysms of difficulty in breathing, but never had convulsions. There were signs of rickets, and he was badly developed both mentally and physically.

The absolute cardiac dulness extended across the chest from the left nipple line to within a finger's breadth of the right nipple, and above the second left costal cartilage. Over this area a systolic murmur was audible, somewhat prolonged and slightly harsh, with its maximum intensity at the sternal end of the third left costal cartilage. There was no thrill perceptible. The ends of the fingers and toes were not clubbed, and there were no signs of cyanosis either on admission or subsequently. The child died two days after admission with a high temperature, but at the post-mortem nothing was found to account for the hyperpyrexia and death.

Examination of brain was not permitted. The lungs and abdominal organs were apparently normal. The pericardium contained a slight amount of serous fluid. The right ventricle and the right auricle were much hypertrophied, and their cavities were larger than normal. The left side of the heart was not enlarged. The tricuspid, mitral and pulmonary valves were normal, and the pulmonary artery presented no obstruction in any part of its course. The septum of the ventricles was incomplete at the "undefended space," leaving a somewhat triangular aperture, the base having its concavity upwards. The aortic valves were competent, the foramen ovale was closed and the ductus arteriosus was patent.

Ashby, Henry: Two Cases of Mediastino-Pericarditis in Children. (*Med. Chronicle*, London, 1891, xv., 145.)

In most cases the first significant symptom is ascites; the child may be apparently well except for its swollen abdomen, while an examination of the chest or urine throws no light upon the case. Possibly at this stage there may be some œdema of the face or distended veins in the neck. Sooner or later an enlarged liver is felt, the edge of which may perhaps be found to be irregular or even horny.

Some of these cases are very chronic; they are relieved by tapping, and may go on for many months, or perhaps a

year or two. But sooner or later a more or less general œdema makes its appearance; the face and perhaps the arms become dropsical, and the feet and legs are sure to become so before very long. In other cases the course is certain to be more acute, and this is especially true of the tubercular cases, their career being cut short by an extension of the tubercular process. Probably also the younger the patient the shorter the course is likely to be.

A careful examination of the chest is necessarily called for in these cases. Any extensive matting of the anterior edges of the lungs in the anterior mediastinum, and a pericardium adherent to surrounding structures will certainly give rise to an increased area of dulness over the sternum and front of the chest; while if the lungs are not involved and freely overlap the heart and bronchial glands there may be no increased dull area. Much stress has been laid on the weakening of the pulse which is said to take place during deep inspiration in cases of mediastinitis; in some reported cases the pulse has actually disappeared during inspiration. In neither of my cases was this observed, but in the first case the boy was too young and too ill for such observations.

The first case was a boy two years old, and was under observation only a week before death. The second case was a boy seven years old, and he died five months after he first came under observation. Post-mortem in the first case: Lungs not adherent in the anterior mediastinum or anywhere else. Pneumonia of right lower lobe and left upper lobe. No tubercles. The pericardium was adherent to the sternum and chest walls, and to a mass of glands and other structures in the middle mediastinum, and below to the diaphragm. The pericardium was much thickened and firmly adherent to the heart. The mediastinal glands were enlarged and caseous, and several of them were softened. The structures in the mediastinum, trachea, bronchi, glands, aorta, vena cava, œsophagus, etc., etc., were bound and matted together by thick adhesions. The liver was adherent to the diaphragm and much enlarged, being distended with blood; there were several nodules on the surface near the edge, due to a slight condition of cirrhosis. There were recent miliary tubercles on the surface, and a few minute tubercles in the liver itself, in the neighborhood of the portal vessels. In the second case, the right lung was apparently normal and non-adherent. The left lung was surrounded by dense adhesions and contained recent

tubercle. There was complete matting together of the mediastinal glands with the pericardium. The mediastinal glands were more numerous than usual, some were enlarged and contained miliary tubercle, whilst others were shrunk and pigmented. The heart was small, the right ventricle dilated, the left auricle wall thickened, the mitral orifice only admitted the forefinger and had somewhat thickened edges; the tricuspid orifice admitted three fingers. The liver was adherent to the diaphragm, was much enlarged and nutmeg. Miliary tubercle was present in most of the other organs, and also meningitis.

Stahl, B. F.: Acute Chorea, with Fatal Endocarditis. (*Annals of Gynec. and Pædiatry*, Phila., 1891, v., 183.)

C. M., female, aged six. Family history free from any neurotic tendency, or other discoverable predisposition to disease. For a week or ten days before seeking medical advice, she had complained of her legs and feet being asleep, the "numb feelings" seemed to be confined to the lower extremities and not referred to the articulations.

On May 19, 1891, she was pale, had moderate fever (101°), pulse 130, small and somewhat irregular in rhythm, tongue coated, stomach irritable, frequent vomiting, bowels constipated, some cough. There were small moist râles over both lungs with no impairment of resonance. There was a presystolic and systolic mitral murmur, without increase in cardiac area. There was considerable dyspnœa. Three days later there developed a mild chorea, most marked on the right side. It reached its greatest severity and rapidly subsided. The dyspnœa, meanwhile, increased and the pain about the heart became more severe. By the twelfth day the choreic movements were no longer present, the dyspnœa now amounted to orthopnœa, the murmur had not changed in character, there was a puffiness about the extremities, and the lungs were more congested. The child died the twentieth day from my first visit of heart failure due to dilatation. No autopsy allowed.

Jersey, W. B. de: Gangrene of Lung following Pneumonia in a Child Twenty-one Months Old. (*Lancet*, London, 1892, i., 21.)

The patient was a boy, twenty-one months old, who was admitted to the hospital eight weeks after the beginning of his illness. On admission the temperature was 101.6° , pulse 146, and respiration 36. Wooden dulness

over the whole of the left chest, except near the spine, where there was rather more resonance. Blowing breathing in front from apex to nipple and behind down to middle of scapula; only very faint distant breath sounds elsewhere; no crepitations or moist sounds. Apex beat not displaced. The left side of the chest a quarter of an inch larger than the right. An exploring needle showed pus, and therefore an incision was made in the sixth space. About a drachm of fetid pus escaped and the soft friable lung which easily broke down could be felt. The child died three days later, with some diarrhœa and vomiting, both very offensive; very fetid breath; and over the whole of the left lung wooden dulness and absence of breath sounds.

Autopsy.—Left lung solid, tubes widely dilated and thickened, containing a large amount of pus. Scattered patches of gangrene all over the lung, the whole very fetid. Pleura adherent firmly all over. Some bronchitis in right lung. No tubercles found anywhere. The above case is interesting on two grounds: first, the fact of gangrene of the lung occurring in so young a child after what was in all probability a pneumonia; second, the difficulty in diagnosis.

Ogle, John G.: Enteric Fever in a Child Four Months and a Half Old. (*Lancet*, London, 1892, i., 21.)

On September 17th the mother went to her work in the morning leaving the child, apparently well, in the charge of a friend; in the evening, on her return, the child was in the mortuary of St. Bartholomew's Hospital. The post-mortem examination showed no signs of violence. The vertex of the brain was somewhat ecchymosed, and the left lateral ventricle contained a considerable excess of fluid. The intestines presented the appearance typical of enteric fever. The Peyer's patches were swollen and reticulated, and many of them, especially in the lower part of the ileum, were converted into ragged ulcers. The first ulcer occurred about twenty-four inches from the stomach, and they were of circular shape, and about four inches apart in the jejunum. In the ileum the ulcers were much more numerous and assumed an oval form, with the long axis in the long axis of the intestine. The mucous membrane of the colon was covered with minute inflamed solitary glands, which were ulcerated in the ascending portion. The mesenteric glands were enlarged.

Shirley, I. A.: Fatal Hæmorrhage in an Infant after Scarification of the Conjunctiva. (*N. F. Med. Journ.*, 1892, lv., 15).

The patient, a female, when about six weeks old had a purulent conjunctivitis, for which the palpebral conjunctivæ were freely scarified and sulphate of copper in substance applied. Both parents were syphilitic. When called to see the case fifteen hours after the scarification blood was flowing freely, terrifically from the conjunctival incisions, and this hæmorrhage could not be stopped in spite of the local use of hot water, ice and persulphate of iron, in powder and in solution. Therefore, the everted mucous membranes were approximated in such a way that a needle could be passed beneath the bleeding areas, and the upper and lower conjunctivæ were firmly united by four interrupted sutures in either eye. Hæmorrhage was now effectually and permanently stopped, but the child died two hours later.

Dabney, W. C.: The Appearance of Nervous Symptoms in the Early Stages of Diphtheria. (*Med. News*, Phila., 1892, lx., 74.)

Two cases are reported in which very marked numbness and tingling of the limbs, especially of the arms, occurred at the *commencement* of an attack of diphtheria. In the first case, a boy ten years old, these symptoms appeared on the second day of the disease, lasted three or four days, and gradually disappeared. Two weeks after apparent recovery there was marked paresis of accommodation, but no other paralytic symptoms developed. In the second case, a sister eight years old, the numbness appeared on the first day of the attack, lasted three or four days and passed off gradually. Both cases pursued a mild course and ended in recovery.

Stewart, J. C.: A Rare Congenital Deformity of the Heart in a Two Year Old Child. (*Northwestern Lancet*, St. Paul, 1892, xii., 28.)

The child was idiotic. The history was largely negative, but it was not a "blue baby" although its heart always beat "too fast." The heart was enlarged, both ventricular walls, especially the right, were much thickened, but there was no dilatation. There was a defect three-fourths of an inch in diameter in the inter-ventricular septum, situated at the auriculo-ventricular junction in the membranous portion of the septum, but encroaching on the anterior portion.

There was also an aneurism of the tricuspid valve, due to the forcing of a stream of blood back from the left ventricle against one of its leaflets. The other valves were normal; the right auricle was enlarged; the left rather small. There was no communication between the auricles. The liver, kidneys and lungs showed chronic congestion and induration. Both lungs showed minor malformations in the arrangement of the lobes. The brain showed certain interesting malformations.

Vander Veer, A: Constitutional Treatment of Diphtheria. (*Albany Med. Annals*, 1891, xii., 275.)

Our first duty is to remedy any sanitary defects. Too little attention is paid to the condition of the soil underneath the house, in the streets and surrounding portions of the country. Cold, wet soil and cellars are undoubtedly predisposing causes and must be remedied. Place the patient in the upper part of the house in a room which has been disinfected, keep the temperature between 65 to 70 degrees, and the air must be somewhat moistened with steam.

We must remember that our patient is to be thoroughly supported, and if I were to place side by side nourishment and stimulants in one column, and medicines in the other, and have to select from which to treat my patients, I would give up the latter. We must begin the nourishment promptly, and when the throat has become hot, swollen, throbbing and constantly dry, there can be no mistake in giving our nourishment, such as beef extract, milk, liquid food of whatever nature we may think best; ice-cream and frozen milk is very often gratifying. Plenty of nourishment should be given as often as once in two hours.

When threatened with paralysis of any form, then is the time to add our iron, strychnine, or nux vomica, and if accompanied with much exhaustion, to have great confidence in the administration of stimulants. I believe that such of our extreme men who treat diphtheria with alcohol are not always to be criticized. There are undoubtedly cases saved in this manner.

This is a disease in which I do not believe blood-letting is advisable; no mercurialization; no administration of veratrum viride or powerful drugs to depress the heart's action. It is essentially an exhausting disease.

When a case appears in a family it should be isolated and the rest of the family kept in the dry, healthy open

air as much as possible. Food should not be allowed to stand in the room in the presence of the patient suffering from the disease, and the nurse should be careful to take plenty of nourishment and sufficient out-door exercise to keep her own system in a condition of resistance.

Smith, C.: *A New Method of Treating Diphtheria.* (*Practitioner*, London, 1891, xlvii., 430.)

The confidence in the value of this treatment is based upon its use in seventeen cases, two of which died. The treatment consists of the *continuous* inhalation of a vapor composed of a mixture of carbolic acid, eucalyptus oil and turpentine until the patient is well, and at the same time support to the heart by stimulants, as well as tinct. digitalis, tinct. belladonna, and spirit. ammon. aromat. The principle of inhalation is not new, neither are the ingredients, but the method of applying it and its continuous use, I believe, are so. This method is to place the patient in bed and fix a tent over him by arranging a sheet. Mix the ingredients together in the following proportions: carbolic acid 1, eucalyptus oil 1, and turpentine 8. In young children, and in all laryngeal cases, use steam continuously in the cot. In the mixture soak two cloths about a foot square; place one close to the face, the other on the pillow near the head, on pieces of paper to avoid unnecessary soiling of the bedclothes; in adults or children over eight or ten years of age one or two other cloths of the same size may be soaked and hung about the cot; these must all be kept moist with the mixture and kept very close to the face, but care must be taken that they do not touch it.

Rheindorff: *Laryngeal Tuberculosis in Infancy with a Case of Pseudo-paralysis and Tuberculosis.* (*Jahrb. f. Kinderheilk.*, 1891, Oct., 70.)

The case is of an infant who gave as the sole evidence of congenital syphilis, pseudo-paralysis of both upper extremities. This condition improved rapidly under anti-syphilitic treatment. When seven months old the infant began to lose in weight and strength. In its eighth month hoarseness showed itself. An attempt to discover its cause by laryngoscopic examination failed. As there was no ground on which to found a diagnosis of tuberculosis the hoarseness was believed to be probably due to the syphilis. The hoarseness remained, notwithstanding more energetic treatment by mercury. At eleven months

other signs of a tuberculosis showed themselves and at thirteen months the infant died. On autopsy with evidences of a general tuberculosis were found tubercular ulcerations in the larynx, and syphilitic changes in the ribs. In a careful review of the literature the author concludes that laryngeal tuberculosis in early infancy is a rare disease, yet more cases both in infancy and in earlier and later childhood than the few reported, may well be believed to occur.

III.—SURGERY.

Prescott and Goldthwait: A Report of 392 Cases of Intubation, and 139 Cases of Tracheotomy done at the Boston City Hospital. (*Boston Med. and Surg. Journ.*, 1891, cxxv., 694.)

Three hundred and ninety-two cases of intubation and 139 cases of tracheotomy have been reported, with a mortality-rate of 79.59 per cent. in the former, and 88.5 per cent. in the latter; 2,815 cases of intubation and 23,941 cases of tracheotomy have been collected and analyzed, showing comparatively no difference in the mortality-rate of the two operations. The results depend more upon the nature of the epidemic than upon the operation. With intubation the results depend more upon the skill and experience of the operator than with tracheotomy.

Thirty-seven cases were seen at least a year and a half after recovery from intubation, with perfect voice, and with nothing that would indicate any ulceration from pressure of the tube.

Pusey, W. B.: Thirty-seven Intubations. (*Am. Pract. and News*, 1891, xii., 393.)

In the first fifteen cases there were two recoveries—13.3 per cent. In the last twenty-two cases there were thirteen recoveries—59.4 per cent. In the thirty-seven cases there were fifteen recoveries, or 40.54 per cent.

Taylor, P. R.: Intubation in Diphtheria. (*Lancet-Clinic*, 1891, xxvii., 125.)

A clinical report of four cases of intubation, two of which were fatal and two successful.

Phelps, A. M.: Hip-Joint Disease and Some New Lateral Traction Splints for its Treatment. (*Med. News*, 1891, lix., 725.)

To conclude, my observations lead me to believe that one of the most serious elements of destruction in hip-joint disease is the trauma and pressure produced by muscular spasm; that fixation of the joint without extension is an impossibility; that the successful treatment of the joint must depend upon its absolute immobilization, which can only be produced by proper extension and fixation; that the constitutional treatment of hip-joint disease amounts to but little, independently of mechanical treatment; that mechanics is everything; that extension in the line of the axis of the shaft and in the time of deformity alone in hip-joint disease is entirely wrong; that extension should be made in a line parallel to the axis of the neck, in other words, two lines of extension; that ankylosis is not produced by immobilization, but by the severity and character of the inflammation; that the long traction hip-splints in general use neither properly extend nor immobilize the joint; that in a large percentage of cases the intra-articular pressure results in the destruction of the joint or in ankylosis; that the results in hip-joint disease should be as good as those in knee-joint disease, and will be, provided perfect immobilization can be maintained; that patients should never be allowed to step upon any positive apparatus; that a high shoe in the well leg, and crutch, should be insisted upon until the patient is cured; finally, that the angular deformity seen in cured cases should not occur—such cases are a standing rebuke to the splint and methods employed.

Hauck,: Depressed Fracture of Skull; Operation; Recovery. (*Weekly Med. Rev.*, 1891, xxiv., 484.)

The patient, a healthy girl, aged four, fell fifteen feet and struck on her head. There was a small cut on the right side of the head, two inches above the eye, which proved to be the center of a depressed fracture of the frontal bone, the size of a silver dollar. There was also a fracture of the right forearm and a severe contusion of the right elbow.

No symptoms of pressure were present, but it was still deemed advisable to elevate. A small loose piece of bone was removed and the other fragments were then elevated through the opening thus gained. The dura mater was bulging and it was deemed best to incise it. Over half-an-ounce of clear serum escaped, but no clots were found.

The fragment of bone, after being washed in boiled water, was carefully replaced and an iodoform-gauze dressing, with good drainage, was put on. The child made an uninterrupted recovery. The bony union was perfect and the lines of fracture were hardly discernable.

Power, D'Arcy: Ununited Fracture in the Long Bones of Children. (*Lancet*, 1891, ii., 1336.)

Sixty-three cases were analyzed. From a consideration of the table it appeared that cases of ununited fracture in children grouped themselves in three classes: the first in which the fracture was intra-uterine, the second in young children (often as the result of very slight violence), and a third class embracing the greater number of the cases which occurred in older children, and in the usual manner. Of the sixty-three cases five were in the clavicle, nine in the humerus, eleven in the femur, and thirty-eight in the leg. It was very remarkable that no recorded case had been met with of ununited fracture in the forearm, although numerically the statistics of fractures showed that the radius and ulna were more frequently broken than any other in a child's body. As regarded the sex, non-union occurred in twenty-five males and thirty-five females; in three cases the sex was not mentioned. So few observers had noticed the side upon which the bone was broken that the table was worthless to settle this point; but there seemed to be a general impression that non-union was much more frequent upon the left than upon the right side. At any rate the point was worth noting for future observation. The results of the treatment of non-union were most unsatisfactory. Out of the sixty-three cases bony union was obtained in six cases; in seven the patient was relieved, but in thirty-six cases the patient examined *in statu quo ante*. The author believed that ununited fractures were becoming more frequent than they formerly were, and he endeavored to account for this fact. He also pointed out how extremely rare non-union was in France, not in children only, but in adults of both sexes.

Cheatle, A. H.: A Case of Double Pyosalpinx in a Child One Year and Nine Months Old. (*Lancet*, 1891, ii., 1078.)

The child was admitted to the hospital with tubercular disease of the right lung, and nothing abnormal was detected in the abdomen beyond some tumidity. No vulvovaginitis present. At the post-mortem examination there

was found tuberculosis of the lung, the liver, right kidney and peritonæum. No ulceration was detected in the small intestine. There was an abscess in the left broad ligament. Both Fallopian tubes were distended with pus, the left more so than the right, and apparently in communication with the abscess, the left ovary being completely hidden and the right tube prolapsed when the specimen was looked at from the front. On dissection the peritonæum, though somewhat thickened, was fairly easily dissected off. The proximal ends of both tubes were found to be healthy, the right for an inch, the left for a quarter of an inch; the left opening in the abscess and forming its wall, the abscess containing about one drachm of thick pus. The uterus was found to be perfectly healthy.

Bidwell, L. A.: A Case of Vesical Calculus in a Female Child; Suprapubic Lithotomy. (*Lancet*, 1891, ii., 1039)

The child was eight years old and for twelve months had complained of pain when micturating, and during the last three months she had suffered from incontinence of urine and prolapsus ani. There had never been any hæmaturia. On sounding a large stone was felt, which appeared to completely fill the bladder; on rectal examination its size was estimated to be over an inch in diameter.

A suprapubic lithotomy was done and the stone extracted with forceps after considerable difficulty. It measured an inch and a quarter in each diameter and seven-eighths of an inch in thickness. Its weight was 200 grains. On section there was a nucleus composed of an oxalate, covered by very many layers of phosphates and urates. The child made a good recovery.

Page: Temporary Blindness in a Child following Fracture in the Occipital Region. (*British Med. Journ.*, 1891, ii., 1100.)

This case was related to the Ophthalmological Society of the United Kingdom. The child was only three years old and had remained unconscious for several days after a severe fall on the head. There was a large hæmatoma but no sign of depressed fracture in the left occipital region. There ensued slight weakness in the right arm, nystagmus, and right internal squint, but the important feature of the case was the complete loss of sight which

was undoubtedly present. Several months elapsed before there was any improvement in this point; and even now, sixteen months after the accident, it was by no means certain that vision had been fully restored. The site of the chief injury to the head, and the fact that a linear irregularity could now be felt at the posterior superior angle of the left parietal bone made it probable that there was originally a fracture running from this place downwards to the base in the occipital bone, and it is surmised that the convolutions in that region were severely bruised and might have accounted for the blindness.

Wagner, Clinton: A Case of Thyrotomy in a Child Eighteen Months Old. (*N. Y. Med. Journ.*, 1891, liv., 512.)

When ten months old, from an exposure to cold and wet, a severe cold was contracted, which resulted in permanent hoarseness. At fifteen months of age dyspnœa commenced, which gradually increased in severity, so that at the time of the operation the dyspnœa was very marked. Spasms of the glottis were frequent, especially during the night, and were alarming in their intensity. There was complete aphonia. It was impossible to make a laryngoscopic examination.

Tracheotomy gave complete relief to the dyspnœa. Two weeks later a thyrotomy was done and a papilloma about the size of a small pea was removed from the left vocal cord posteriorly. The child died eleven months after the operation, after a brief illness from the grippe; it gained greatly in weight and strength; its respiration for months previous to its death was through the larynx and not through the tube, and its voice was beginning to return.

Hailes, William: Surgical Treatment of Diphtheria. (*Albany Med. Annals*, 1891, xii., 268.)

The application of powerful caustics is open to grave objections, and it is subject to great and important limitations. The use of the actual cautery or the galvanocautery has been attended with favorable results, but only in rare and exceptionally favorable cases can this procedure be permitted, and consequently the verdict of the profession has consigned these measures to almost complete disuse.

When, in laryngeal diphtheria, asphyxia is imminent, tracheotomy and intubation are the accepted surgical means at our disposal, and both of these methods have

their points of advantage and disadvantage. Intubation is readily and easily performed, fulfills most of the indications, and offers equally good chances of after-treatment; and after a personal experience of almost 250 cases, with about 35 per cent. of recoveries, as a rule, I should advise, with some exceptions, that the treatment should be begun with intubation, and that tracheotomy should follow when the former is not successful.

Pearson, J. C.: The Swallowing of a Jubilee Half-Crown Brooch by a Child of Ten Months; Recovery. (*Lancet*, 1891, ii., 1387.)

When first seen the pharynx was examined with the finger, carefully and deliberately, exploring behind the soft palate, the larynx and gullet, reaching down as far as the finger could go. The brooch was nowhere within reach, but upon withdrawing the finger a severe attack of straining and vomiting supervened, in which the brooch, followed by its pin, came shooting out like a miniature comet. The trinket must have passed down the gullet, brooch first, got turned around in the stomach, and was ejected, brooch first, followed by the pin, with which it was connected by a hinge.

Aldibert: Surgical Treatment of Intestinal Invagination in Children. (*Mal. de l'Enf.*, Paris, 1892, x., 16.)

It is absolutely necessary to operate very early. This is a point of the greatest importance on which too much insistence cannot be laid. To operate after delay means to risk finding either adhesions, already firm between the invaginating and invaginated cylinders or an irreducible invagination, and consequently be obliged to make an enterorrhaphy or an intestinal anastomosis or an artificial anus. Barker, from 1870 to 1887, collected forty-one cases of laparotomy for intussusception. He divides them in three groups: First, reducible invagination; second, irreducible invagination; third, artificial anus from the outset without search for the obstacle. The first group comprises twenty-three cases, with five recoveries and eighteen deaths, a mortality of 78.2 per cent. Since 1888 we have had added twenty-six cases with sixteen recoveries and ten deaths, a mortality of 38.4 per cent. This result speaks incontestably for progress in antiseptic methods, but also for early intervention.

In the group of irreducible invaginations Barker collected fifteen cases. All terminated fatally. Lockwood,

who reported fifteen observations where the intestine was resected, found three recoveries, which brings the mortality to 80 per cent.

Finally, in the group in which the operation was for artificial anus at once, without search for the obstacle, to the three cases of Barker's we have added one, all four have had a fatal termination. We may hope to arrive at a mortality much lower than this, but the lesson to be drawn is not to let an irreducible invagination occur. Intervention immediately after the diagnosis is made, within the first twenty-four hours is the sole means. The injection of liquids or gases under pressure is a method which is uncertain and dangerous.

Comby: Vulvo-Vaginitis in Young Girls. (*Soc. Med. des. Hop. Mal. de l'Enf.*, Paris, 1892, x., 30.)

Contagion is the most frequent origin. Mechanical causes (onanism, oxaluria defloration) have been noted rarely. An eruptive fever, eczema, impetigo herpes of the vulva are sometimes the origin. The more frequent cause is contagion, not venereal, but of varied nature. A lying-in woman who has a blennorrhagic discharge and who transmits a purulent ophthalmia to her new-born may give a vulvo-vaginitis to the child who sleeps with her or who uses the same toilet articles.

Lubet-Barbon: Symptoms Produced by Adenoid Vegetations in Young Infants. (*Mal. de l'Enf.*, Paris, 1891, Nov., 499.)

In a child of one month the symptoms presented were that it could not breathe while nursing, and while nursing was frequently seized with attacks of coughing. It did not gain in weight, breathed with mouth open and had a constant muco-purulent discharge from the nostrils. In another case, a child aged sixteen months, there were difficult respiration, mouth-breathing, dryness of the lips, the face of violet hue; the respiration was noisy, hoarse, frequent, such as to closely simulate the respiration in a case of croup. The child had never been able to take the breast nor nursing-bottle, but had been fed from a glass. Cough was frequent and often caused vomiting. In another case there was a considerable emphysema. Four cases are reported. In all the treatment consisted of removing the growth by means of forceps of a particular model. The operation was performed at several sittings. In all complete recovery or great improvement followed.

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REMARKS ON SPECIALISM.*

BY WM. OSLER, M.D.,

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GENTLEMEN: First, let me express my gratitude for your kindness in conferring upon me the honor of your Presidency—an honor enhanced by the standing and character of the men who have previously occupied this chair. To have selected as your presiding officer one whose work has lain in the wide field of general medicine, is an indication that you duly appreciate the relation of the special subject in which we are now interested, and to which this society is devoted. The diseases incident to infancy and childhood are so varied, covering every department of internal medicine, as well as of surgery, that the broad distinctions emphasized by the names physician and surgeon suffice to characterize us, and happily we have not as yet been stamped with a distinctive appellation, under which so many of our colleagues in other lines labor. In the extraordinary development of modern medicine limitation in work is inevitable, and although as practitioners and teachers we are all necessarily interested, to some degree, in the diseases of children, there

* Annual address of the President of the Fourth Annual Meeting of the American Pediatric Society, Boston, May 2, 1892.

are among us those who find in them their chief occupation, and our society is but an organized expression of a very natural desire to unite for the purposes of study.

On an occasion of this kind it seems best to me not to discuss any particular subject, but to deal with some problem of general interest, with bearings, however, upon our organization. In comparison with the older countries of Europe, specialism may truly be said to be the most distinctive feature in the medical profession of America. And it may not be inappropriate to consider here a few of its advantages and disadvantages.

“That which has been is that which shall be.” Medicine may be said to have begun with specialists. The Ebers Papyrus is largely taken up with the consideration of local diseases, and centuries later we find in Greece certain individuals treating special ailments; and Aristophanes satirizes a “rectum specialist” in a way not unlike our comic journals would “poke fun” at an oculist or an aurist. The tail of our emblematic snake has returned into its mouth; at no age has specialism been so rife. To follow its gradual development during the present century would take more time than is at my disposal, and would not be a profitable task. The rapid increase of knowledge has made concentration in work a necessity; specialism is here, and here to stay.

The advantages to the profession which followed this differentiation have nowhere been more striking than in this country, and the earnest workers in ophthalmology, gynæcology, dermatology, and other branches have contributed largely to inculcate the idea of *thoroughness*, the necessity for which is apt to be lost sight of in the hurry and bustle incident to the growth of a nation. Better work is done all along the line; a shallow diffuseness has given place to the clearness and definiteness which comes from accurate study in a limited field. The day has gone by for Admirable Crichtons, and although we have a few notable illustrations in our ranks of men who have become distinguished authorities in eye and skin diseases, and upon syphilis, without sacrificing their in-

terests in general surgery, such are necessarily rare, and, unfortunately, from the very circumstances of the case likely to become more uncommon. Then how comforting to the general practitioner is the wise counsel of the specialist. We take him a case that has puzzled and annoyed us, the diagnosis of which is uncertain, and we consult in vain the unwritten records of our experience and the printed records of our books. He labels it in a few minutes as a coleopterist would a beetle, and we feel grateful for the accuracy of his information and happy in the possession of the label. And if sometimes (standing like Aaron between life and death) he illumines too brightly the darkness of our ignorance, are we not as often beholden to him for gentle dealing?

It is almost unnecessary to remark that the public, in which we live and move, has not been slow to recognize the advantage of a division of labor in the field of medicine. The desire for expert knowledge is, however, now so general that there is a grave danger lest the family doctor should become, in some places, a relic of the past. It must indeed be a comfort to thousands to feel that in the serious emergencies of life, expert skill, is now so freely available. Perhaps, as specialists, no class in our profession has been more roundly abused for meddlesome work than the gynæcologists, and yet what shall not be forgiven to the men, who, as a direct outcome of the very operative details which have received the bitterest criticism, have learned to recognize tubal gestation, and are to-day saving lives which otherwise would inevitably have been lost? I have known Formad to show in one year at the Philadelphia Pathological Society, ten or twelve examples of ruptured tubal pregnancy obtained in medico-legal work (sudden deaths) in that city. The benefits which the public reap from specialism may be gathered from the fact that in a not much longer period of time I have seen seven specimens of tubal gestation, not removed by the pathologist, but by the gynæcologist, with the saving of five lives. The conservatism, which branded ovariologists as butchers and belly-rip-

pers, is not yet dead among us, and I say it frankly, to our shame, that it has not always been professional encouragement which has supported the daring advances on special lines. Humanity owes a great debt of gratitude to the devoted men who have striven during the past half century for exactness in knowledge and for its practical application in all departments, a debt too great to pay, too great, one sometimes feels, even to acknowledge.

Specialism is not, however, without many disadvantages. A radical error at the outset is the failure to recognize that the results of specialized observation are at best only partial truths, which require to be correlated with facts obtained by wider study. The various organs, the diseases of which are subdivided for treatment, are not isolated, but complex parts of a complex whole, and every day's experience brings home the truth of the saying, "when one member suffers all the members suffer with it." Plato must have discussed this very question with his bright friends in the profession—Eryximachus, perhaps,—or he never could have put the following words in the mouth of Socrates: "I dare say that you may have heard eminent physicians say to a patient who comes to them with bad eyes, that they cannot cure the eyes by themselves, but that if his eyes are to be cured, his head must be treated; and then again they say that to think of curing the head alone and not the rest of the body also, is the height of folly. And arguing in this way they apply their methods to the whole body, and try to treat and heal the whole and the part together. Did you ever observe that this is what they say?"* A sentence which embodies the law and the gospel for specialists.

A serious danger is the attempt to manufacture rapidly a highly complex structure from ill-seasoned material. The speedy success which often comes from the cultivation of a speciality is a strong incentive to young men to adopt early a particular line of work. How frequently

* Charmides: Jowett's translation.

are we consulted by sucklings in our ranks as to the most likely branch in which to succeed, or a student, with the brazen assurance which only ignorance can give, announces that he intends to be a gynæcologist or an oculist. No more dangerous members of our profession exist than those born into it, so to speak, as specialists. Without any broad foundation in physiology or pathology, and ignorant of the great processes of disease no amount of technical skill can hide from the keen eyes of colleagues defects which too often require the arts of the charlatan to screen from the public.

In the cultivation of a speciality as an *art* there is a tendency to develop a narrow and pedantic spirit; and the man who, year in and year out, examines eyes, palpates ovaries, or tunnels urethræ, without regard to the wider influences upon which his art rests, is apt, insensibly perhaps, but none the less surely, to acquire the attitude of mind of the old Scotch shoemaker, who, in response to the Dominie's suggestions about the weightier matters of life, asked, "D'ye ken leather?" There is not a single department, the study of which does not carry with it the correction of this most lamentable tendency. Problems in physiology and pathology touch at every point the commonest affections, and exercised in these, if only in the early years of professional life, the man is chastened, so to speak, and can never, even in the daily round of the most exacting practice, degenerate into a money-making machine. And let the younger of my hearers lay this to heart: scan the lives of say twenty of the men most prominent in special lines of medicine and surgery to-day in this country, and you will find, with scarcely an exception, the early years devoted to anatomical, physiological, or pathological studies. They rose high because the foundations were deep. The most distinguished oculists have been men trained in physiology and pathology; and some, like Sir William Bowman, have had reputations so preëminent in several departments that the identity of the physiologist has been lost in the ophthalmologist.

In the larger cities the work of the specialist encroaches more and more upon that of the general practitioner, and this condition, though in many ways to be regretted, is not likely to be changed. I have known the head of a household pay, in the course of a year, for the professional services of six physicians—a gynæcologist, an oculist, a laryngologist, a dermatologist, and a surgeon. What remained after this partition of the general practitioner came in sixth and looked after the health of the children. It is interesting to note that to this one pertains the functions to a large extent of the old family doctor, and further advice is usually sought through him or at his suggestion. In the evolution of the specialist, the children's doctor is the last to appear, not because of any extreme differentiation, but rather he is a vestigial remnant of what was formerly in cities the general practitioner. May I not say that there are members of our society whose interest in their work is largely due to this new feature in domestic life? In the division of the household among our brethren, the children alone remain, and fortunately their ailments are too diversified to allow much specialization.

After all, though specialism is rife, and has so carved the "body of physic" that Hippocrates would scarcely recognize it, and though its sounds go out loudly and echo through the journals and society reports, nevertheless, I would boldly make claim for a wider diffusion of its benefits. Of dwellers in cities arrogance is a peculiar trait, and we discuss problems in a "surely-we-are-the-people" style, forgetting that outside lie the greater millions equally precious to Æsculapius, and under the care of men who cannot specialize, who must be able to set fractures, perform version, treat iritis as well as fever, earache as well as the itch. What of the benefits of specialism to this larger class from whose ranks the cities are replenished and whose health is so essential to the nation? The out-door department of our hospitals and the consulting-rooms of city physicians tell of the necessity of special knowledge to these people, particularly in emer-

gencies and in the graver and more unusual forms of disease; but those who thus avail themselves form but a fraction of the numbers who require technical skill for the purposes of diagnosis or treatment. Very little additional knowledge enables the general practitioner to grapple with a large proportion of the cases which in cities come under the care of the specialist. The question resolves itself into one of education. It is impossible in three sessions to bring men beyond the superficial routine, but in a more prolonged course—as I know from experience—the student can be taught practically, in the wards and dispensaries enough of the technique of the specialist to give, at least, a foundation upon which to work. He should leave the schools knowing the practical application of the microscope, the ophthalmoscope and the laryngoscope, and in these and other lines he should have proceeded to the stage in which he recognizes the limitations of his knowledge. Such a man, in general practice, should know a “choked-disc”; the examination for tube-casts should be a familiar, every-day task; and he should be able to tell whether a vocal chord was paralyzed. A serious obstacle to this happy consummation—which can be reached in a well-ordered system of education—is the absence, in the early years of practice, of material upon which to freshen the memory and to “keep the hand in”; but the man who, as a student, has reached a certain point always retains some measure of the old facility. The post-graduate schools have done much to enable men to revive and to acquire technical skill, and have been of great service in generalizing special knowledge. In the practice of a good, all-round man, the number of cases demanding the help of a specialist is, after all, not great. The ordinary run of nervous disorders should be recognized, adenoid vegetations he would treat with the skill of a laryngologist; he would know enough not to tinker with a case of glaucoma; and though he might not diagnose a pus-tube from tubal gestation, he would (in this as in other details) have learned to know his limits and be ready to seek further advice.

With the revival and extension of education the benefits of specialism will become more widespread, and to this end the efforts of colleges and hospitals should be directed.

The organization of societies for the study of particular diseases has been of late a very notable feature in the professional life of this country. Since the foundation of the Ophthalmological Society, more than a dozen associations have been formed, and their union in a triennial congress has proved a remarkable success. These societies stimulate work, promote good-fellowship, and aid materially in maintaining the standard of professional scholarship. They are nearly all exclusive bodies, limited in membership, and demanding for admission evidence of special fitness. This point is sometimes urged against them; but the members exercise no arbitrary privilege in asking of candidates familiarity with the subject, and evidence of ability to contribute to the general store of knowledge. In some of the specialties these societies have been particularly useful in disciplining men who have traduced, not the code, but the unwritten traditions of our craft, acting as if they were vendors of wares to be hawked in the market-place.

Our own society may be regarded as the outcome of a notable revival, during the past few years, of interest in the study of the diseases of children: The existence of a special journal devoted to pediatrics, and the successful issue of a large cyclopædia of the diseases of children testify to the appreciation on the part of the profession of the necessity for the more accurate study of this branch. This body offers to men who are working and teaching in pediatrics an opportunity of knowing each other, of discussing subjects of common interest, and through the medium of their publications making general the more special details of value in practice. The programme before you indicates clearly that we are all workers in general medicine; and may the character of the papers and the discussions be the best justification of the existence of an organization devoted to the study of a particular section in that field.

CROUPOUS GASTRITIS, WITH A REPORT OF TWO CASES.

BY MARTHA WOLLSTEIN, M.D.,

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CASES of membranous inflammation of the stomach, occurring independently of diphtheria in the upper respiratory or digestive tract, have received but little attention in medical literature, from the fact, undoubtedly, that they so rarely occur as a primary disease. The diagnosis is, in consequence, extremely difficult, and the treatment entirely subordinate to that of the preëxisting condition, whose prognosis is made much more grave. The ætiology and pathology present the interesting and instructive features.

Ætiology.—Croupous gastritis is especially a disease of childhood, and even then it is rare. A very few idiopathic cases occurring in adults are reported, but in children none at all.

Rokitansky says that it is never primary except in the aphthous process of infants. Here the stomach lesion would be secondary to that of the mouth. According to Parrot membranous gastritis is not very rare among the new-born. He reports four cases, of which three occurred in babies suffering from athrepsia, in one instance complicated by thrush. He further believes that Valleix and Billard have confounded the disease with thrush (unguet), of which Valleix saw twenty-four cases with twenty-two deaths; and in only one did the lesion spread so as to involve the gastric mucous membrane. Parrot's fourth case is secondary to cholera infantum in an infant eleven months old. Bednar and Rokitansky have found the lesion in the stomachs of new-born children dying of pyæmia; and Orth says that here it follows pyæmia of the infant, with or without infection of the mother. Runge, in his very excellent monograph on "*Krankheiten der Ersten Lebensstage*," makes no mention whatever of the condition.

In later infancy and throughout childhood membranous gastritis has occurred co-incidentally with an attack of some one of the exanthemata, especially scarlatina and variola. Ziegler thinks that diphtheria of the throat is then always present. The cases reported by Steiner and Neureuter, Vidal, and Löschner, tend to substantiate this view in scarlatina, typhus and measles respectively; especially as no case of any one of these diseases unaccompanied by membrane in the throat seems to have been complicated by the gastric lesion. In the absence of bacteriological tests the nature of the membrane must, of course, remain a problematical one. Tuberculosis has several times been noted as the preëxistent condition, and Wilks and Moxon report a case complicating abscess of the liver. In old people chronic nephritis has been the predisposing cause.

Smirnow reports six cases of membrane in the stomach, all occurring in patients dying of diphtheria. In consequence of microscopical studies of all these cases, he excludes four as being only croupous, not diphtheritic. His reason is that the membrane in these four cases is composed only of exudative products, and not of coagulation necrosis of the gastric epithelium. Herein he follows the teachings of von Recklinghausen, who considers exudation as a secondary, and in great part regenerative condition in diphtheritic inflammation, necrosis being the primary and essential thing necessary for the production of the pseudo-membrane. This view is untenable because it loses sight of the main and causative factor in the production of true diphtheria, which is, of course, the bacillus of Löffler.

Smirnow made a bacteriological examination of his specimens and describes both cocci and bacilli as occurring in all the four cases he afterwards excludes. The material was too old for cultures, and the nature of these bacteria can only be surmised. Since, however, they were all preceded by typical diphtheria of the throat, it seems but natural to assume that they were cases of diphtheria of the stomach, caused by a direct transmission from the

throat by swallowing particles of membrane containing the bacilli, since these are never carried by the blood.

That the œsophagus is often healthy in these cases may be explained by the facts that the bacillus of Löffler does not grow upon a normal epithelium, and that inflammations of the œsophagus are comparatively rare. Moreover, the nature of the epithelium, *i. e.*, its stratification and flatness, renders the occurrence of dangerous erosions relatively difficult and rare.

Andral, Billet, Rilliet and Barthez, and Cahn, have reported cases of diphtheria of the stomach occurring with diphtheria of the throat. Cahn's case was further interesting because of the presence of acute yellow atrophy of the liver.

Corrosive poisons as a direct cause require merely to be mentioned here.

If now, we exclude the adult cases, and also those of true gastric diphtheria, we find that the causative factors in croupous gastritis can be arranged as follows:

1. *Predisposing*:

a. The non-infectious; athrepsia.

b. The infectious; tuberculosis, cholera infantum, exanthemata (provided diphtheria of the throat and nose can be excluded).

2. *Direct*:

a. Pathogenic bacteria, present either in the lymph or blood, or swallowed with the food.

b. Products of fermenting food and mucus in the stomach itself.

All the predisposing causes have one factor in common; namely, they reduce the child's resisting powers to a minimum; either by their acute severity (cholera infantum), or by their chronicity (tuberculosis and athrepsia). In this way they prepare both the general and the local condition for the action of the direct cause. Whether the local lesion can be caused by the specific organisms of the general disease preceding is unproved, except in the case of diphtheria, which we excluded. That the pyogenic bacteria are the most frequent cause will, undoubtedly, be found to be true.

The *pathology* can best be studied in the following cases, for the first of which I am indebted to Dr. L. Emmett Holt, and in whose service the second occurred at the Babies' Hospital.

CASE I.—Male, twenty-one months old.

Family history.—Probable syphilis in the mother.

Personal history.—Nursed twelve months. At the age of fifteen months he had broncho-pneumonia, during the course of which a severe gastro-enteritis occurred, and from which he recovered very slowly. The lung not being fully cleared after two months. Throughout this illness vomiting was not a marked symptom, being present only after coughing or the administration of stimulants. At eighteen months he had another short attack of gastro-enteric catarrh, and again one month later, a severe enterocolitis. Pertussis developed a few weeks afterward and became very severe.

Present illness.—Dull four or five days; losing flesh and strength; no vomiting; takes food well; cough paroxysmal.

Status præsens.—Respiratory murmur posteriorly rude; fine râles present in both lungs posteriorly; temperature normal; cervical and inguinal glands slightly enlarged; circulation poor.

For three weeks the child went on in about the same way, emaciating steadily, taking his food well and without vomiting, but digesting it badly, the stools being from three to eight in number, greenish-yellow in color, and containing much mucus, but never blood. The râles gradually disappeared, but a slight cough persisted; great irritability was present throughout the illness.

Death occurred quietly, without convulsions, on the twenty-sixth day.

Autopsy:

Body.—Much emaciated.

Brain.—Normal; no tubercles present.

Heart.—Normal.

Right lung.—Few tubercles in lower and middle lobes; in upper lobe a pea-sized area made up of small yellow tubercles. No pleurisy.

Left lung.—Upper lobe in state of broncho-pneumonia at apex, and contained small cheesy area at its anterior border.

Lower lobe studded with miliary tubercles, and a few cheesy nodules present in the interior.

Adhesions between the lobes, between the base and the

diaphragm, and between the lower lobe and the pericardium.

Bronchial glands.—Enlarged and cheesy, both at the root of the lung and following the bronchi down.

Liver.—Normal; no tubercles.

Spleen.—Enlarged; few tubercles on the surface only.

Kidneys.—Congested; no tubercles present.

Stomach.—Marked thickening of the walls; cavity lined with a distinct, granular-looking pseudo-membrane, most marked about the pyloric orifice.

Small intestine.—Normal.

Large intestine.—Walls thickened; no ulcers. Rectum and sigmoid flexure in state of croupous colitis.

Microscopical examination:

Stomach.—The superficial epithelium of the mucous membrane was completely gone, and on the surface of the glands lay a granular membrane, firmly adherent in places, and dipping down into the mouths of the tubules. The glandular epithelium was nowhere intact, being swollen, degenerated and in many places peeled off, lying in the lumen of the tube. The mucosa between the glands was densely infiltrated with pus, and the ulceration extended to the muscularis mucosa. The sub-mucous coat was much infiltrated and its vessels intensely congested; the muscular coat also showed interstitial infiltration with inflammatory products. A few swollen lymph nodules lay in the sub-mucosa at the bases of the glands. The membrane, stained by the Weigert method, was shown to be composed of a rather loose net-work of fibrine, entangling pus, granular *débris*, degenerated and swollen epithelium and cocci. By *Gram's* stain colonies of small micrococci were found in the superficial part of the membrane, while scattered through all the coats of the stomach, but most numerous at the mouths of the glands, were short, thick rods—bacteria of putrefaction. *Löffler's* stain gave a negative result for diphtheria bacilli.

Intestine (rectum).—Typical membranous inflammation, the glands being stripped off over an area of one-eighth inch, and replaced by the granular membrane similar to that in the stomach. The infiltration of the sub-mucous and muscular coat was less marked than in the stomach; the organisms present were the same.

The œsophagus was unfortunately not examined.

Lungs.—Acute miliary tuberculosis.

Bronchial glands.—Conglomerate tubercle, much cheesy matter and many giant cells.

The points of interest in this case are the absence of diphtheria in the ætiology, the athreptic condition of the child resulting from the lung, general tuberculosis, and the entire absence of any symptom pointing to so severe a gastric lesion, the first intimation of its existence being its discovery at the autopsy.

CASE II.—Male, æt. six weeks.

Family history.—Negative.

Personal history.—Purulent ophthalmia present since third day of life.

Status præsens.—Heart and lungs normal; bowels regular; weight seven pounds four ounces; purulent ophthalmia.

The eyes rapidly improved, but the general condition did not. After three days in the hospital vomiting began and was frequently repeated. The stomach was washed out once every day, much mucus and finely divided particles of food being removed. This was discontinued after ten days, when the vomiting had ceased. The weight steadily diminished, and a nasal discharge began, which soon became bloody, excoriating the upper lip. An ulcer appeared on the hard palate, and was touched with silver nitrate. On the twentieth day after admission his weight was only six-and-three-quarter pounds. The next day there was a sudden discharge of blood, about one-half ounce, from the mouth. Artificial respiration was begun, but each expiration brought a gush of blood, and in two minutes the child was dead.

Autopsy.—Twenty-three hours after death.

Body.—Emaciated; sero-bloody discharge from nostrils; upper lip eroded. Follicular ulcers on gums and inner surface of lower lip.

Brain.—Normal.

Lungs.—Congenital atelectasis. The greater part of both lungs was solid, the aerated lung tissue forming a narrow, crepitating border superficially. Congestion was extreme.

Heart.—Normal; foramen ovale closed.

Liver.—Congested.

Spleen.—Slightly enlarged; dark and soft.

Kidneys.—Normal.

Larynx.—On under surface of epiglottis and on inner side of thyroid cartilage there was a thin, granular, non-adherent membrane, the surface beneath being reddened.

Over soft palate and extending somewhat on to the inner surface of the cheek the membranous deposit was thicker and more adherent.

Pharynx.—Contained no membrane, nor did the *nose*.

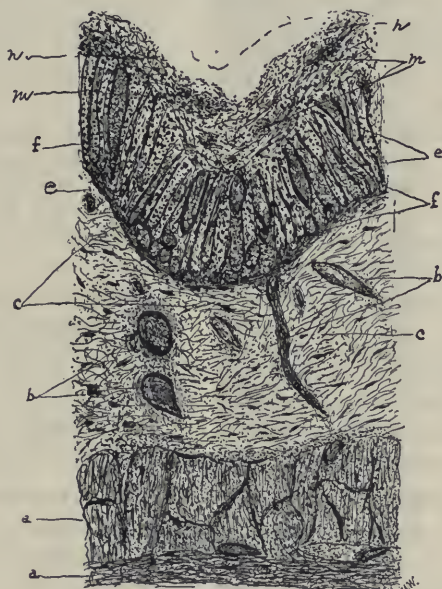
Œsophagus.—Apparently normal.

Stomach.—Intense general gastritis, the congestion on the rugæ being very marked. Along the greater curvature, extending over an area of one-and-a-half by one inch, appeared a thick, grayish-green membrane, very adherent in the centre, but peeling off at the edges. An erosion five-eighths by one-half inch occupied the centre of the membranous mass. The walls throughout were much thickened.

Intestines.—Normal; no membrane.

Microscopical examination:

Epiglottis.—The lower surface was covered about one-



n. The membrane. *m.* Micrococci. *e.* Dilated blood-vessels, opening in the free surface. *f.* Glands, with degenerate epithelium and marked infiltration between. *c.* Oedematous connective tissue of submucosa. *b.* Congested blood-vessels. *a.* Muscular coat, infiltrated.

half way by a thin, granular membrane, composed of a small quantity of fibrine and much granular *débris*. Myriads of micrococci were found in the upper layer. The epithelium beneath was destroyed, but the tissue beneath was but slightly infiltrated with small, round cells.

Thyroid cartilage.—On the inner side the lining epithelium was peeling off in places, and a very thin layer of

pseudo-membrane appeared, extending only over a very small area. There was no infiltration beneath.

Esophagus.—Showed a condition of desquamative catarrh.

Stomach.—A pseudo-membrane, fibrillated and thick, lay upon the surface of the glands, whose epithelium everywhere was breaking down. It did not dip into the tubules as in the specimen from Case I., *i. e.*, it was less adherent. The vessels about the glands, especially near the free surface, were dilated and intensely congested; thus explaining the intense redness of the gross specimen, and also the source of the hæmorrhage preceding death. The great thickness of the stomach wall was due mainly to the sub-mucosa, which was very œdematous and wider than the mucosa itself. The muscular coats were infiltrated with inflammatory products, and all the vessels were congested. The drawing shows all the points enumerated.

Weigert's stain demonstrated much fibrine in the membrane, and also brought out great numbers of micro-organisms entangled in the meshes of the fibrine fibrils, which were very long. These were only small cocci, mostly in groups or bunches, none in chains; nor were any bacilli present here nor in the larynx.

Cultures made on gelatine and agar-agar from the mouth, larynx and stomach showed, in all cases, growths of staphylococci (probably the staphylococcus pyogenes aureus) much contaminated, especially in the cultures from the mouth and stomach, by putrefactive bacteria. In no case did the bacillus of Löffler appear either in the cultures or in the cover-slips prepared from the fresh specimen.

The diagnosis of this case presents several interesting points. From the clinical history, diphtheria could be excluded, or at least made very doubtful, in view of the long duration of the nasal discharge, and the absence of throat and of general septic symptoms; moreover, there was no visible membrane in the nose or pharynx, and the appearance of the mouth might easily have been due to the use of nitrate of silver. That the membrane is occasionally situated too high in the naso-pharynx or too low at the sides of the epiglottis to be visible, makes this an unreliable point when occurring alone; it is only when considered in connection with the others that it becomes of some value.

At the autopsy, the condition of the epiglottis, larynx, stomach, and palate seemed at first to make diphtheria the only rational diagnosis, supposing the nasal lesion to have disappeared.

The only remaining thing which could throw any light upon the case was a bacteriological examination, both by cover-glass preparations and by cultures. These, as reported above, gave negative results for diphtheria, and showed suppurative and putrefactive bacteria only. The case, then, was one of membranous or croupous inflammation involving the mouth, larynx and stomach, due to pyogenic organisms, principally the staphylococcus pyogenes aureus. The absence of subsequent cases of diphtheria in the ward in which this child had been was a good point in the confirmation of this diagnosis. The case is also of interest in the light of the recent studies on the ætiology of diphtheria.

The *symptoms* of croupous gastritis are but slightly characteristic, and their frequent absence makes a dependence upon them impossible. The pathognomonic sign is, of course, vomiting of shreds of membrane, with or without an admixture of blood. This is, however, extremely rare, both because the membrane is frequently very adherent, and because its tenacity is too great to allow shreds to be dislodged by the feeble efforts at vomiting made by the exhausted infant. More often vomiting is absent altogether, or it is too moderate to cause comment. Pain and tenderness, with distention of the epigastric region, and combined with insatiable thirst are occasionally present, and then certainly simulate an acute peritonitis too closely to make the diagnosis easy. In most cases, according to Steiner and Neureuter, there is nothing whatever to point to a gastric lesion until the autopsy shows it to be present. This was so in Case I., where vomiting was entirely absent, as were all other gastric symptoms, the child even taking his food fairly well until death. In Case II. the severe vomiting of food alone, which yielded to treatment, gave no hint of so severe a gastric lesion. It is probable that in this instance the

vomiting was due to an acute catarrhal gastritis preceding the formation of the membrane, and so the absence of shreds from the washings would be explained. Their presence would, of course, have been an interesting and diagnostic point, had they been large enough to be recognized. These flakes might easily pass for particles of curds or other food. That the dislodgment of large pieces is very difficult will be at once apparent when one considers the impossibility of removing thick, ropy mucus by irrigation. The stomachs of infants so treated I have repeatedly found at the autopsy to be thickly coated with mucus, even when the character of the washings seemed to warrant the conclusion that there was but little present.

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MORTALITY diminishes with every day of advancing life. Every additional hour improves the baby's chances for preservation. Almost one-half of the infants who die before the end of the first year do so before they are one month old. The causes of the disease are the more active the earlier they are brought to bear upon the young with their defective vitality.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

NOTES ON THE CROUPOUS PNEUMONIA OF CHILDREN.

BY E. MANSEL SYMPSON, M.D., B.C., M.R.C.S.,

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WHY should we pay special attention to the pneumonia (and by that for shortness I mean the croupous or acute lobar pneumonia) of children?

Well, the justification for the limited subject of this paper is that the pneumonia of children differs greatly from that of adults in difficulty of diagnosis, in the locality of the lesion, in the lungs, in seriousness of prognosis, and in complications and sequelæ.

First, as to diagnosis. As Juergensen* says, "in young children this is by no means an easy matter. Many children who are reported to have died from 'teething, worms, convulsions,' etc., have really gone to their grave with an undiagnosed pneumonia."

Now pneumonia (and I am speaking here entirely of the primary kind) in children has generally a very sudden onset, commencing with vomiting, convulsions and sometimes, but rarely, with distinct rigors. The fever is high, ranging from 102° to 105° ; the dry heat of the skin is pungently marked, the tongue frequently coated in the familiar strawberry fashion. Pain is not easily found out, nor located, even when the child can talk. It may be ascribed to the stomach or epigastric region; fairly frequently there seems to be little or none, or perhaps the headache which is common and severe has overpowered the other. Respiration may not be very hurried in the first day or two, and so may not be much out of proportion to the pulse and temperature ratios. Cough, again, may be scarcely present.

So that, at the outset, the diagnosis of pneumonia in children is not at all a simple one, while in adults there are few, if any, diseases which so unmistakably manifest their presence as pneumonia.

*Ziemssen's *Cyclopædia*, vol. v., p. 23.

So little do the symptoms at commencement point to the lungs that it will not be in danger of being confounded with other lung troubles, such as broncho-pneumonia,* which has no such sharp approach, and has much more dyspnœa, nor with miliary tuberculosis, where the same may apply. The chief difficulty lies in diagnosing pneumonia from some of the febrile affections of children, notably from scarlet fever and rheumatic fever.

Although in pneumonia there may be a strawberry tongue, inflamed fauces, sharp fever with the peculiarly dry, hot skin which has been mentioned, yet there will probably be no history of infection. If there be no epidemic it will not be a case of scarlatina *sine* exanthemata; there will be no pain or swelling in or about the joints (as sometimes happens in scarlet fever when the rash is delayed) and there will, of course, be no rash in pneumonia. Though an exception must be made to this last, very occasionally, as Dr. Hillier† says, there is a general redness of the skin, of a rose color, and occurring in isolated and well-defined patches in pneumonia, and I have seen in more than one case where there was a scarlet rash wherever the clothes tightly pressed the skin, and this was due almost certainly to the parents having given the children *sp. æth. nit.* before my seeing the cases, and so producing free perspiration.

Neither in measles nor in diphtheria is the initial fever so acute as in pneumonia, though occasionally cases may be met with which compel a suspension of judgment until at least the second day.

Acute rheumatism is another disease which has a superficial likeness to pneumonia. In both there is great apparent heat of skin, with a brisk attack of fever, but in pneumonia there is none of that peculiar perspiration, no heart affection (not uncommon as the only evidence of

*See Dr. L. E. Holt's valuable paper on "The Temperature in Acute Primary Pneumonia in Children," ARCHIVES OF PEDIATRICS, Dec., 1891, p. 881.

†Diseases of Children (1858), p. 27.

rheumatism in children), nor any pain or swelling of the joints.

These, then, are the chief diseases which have to be differentiated from pneumonia in the first two days or so. Later on it has to be separated from pleurisy, which has differences of dulness, a lower temperature generally, and may have given rise to some displacement of organs. Also, there may be some resemblance to meningitis, but there will then be almost certainly some sign of pulmonary trouble (one may here remark that it is good routine treatment to examine the chest in all cases of supposed meningitis); the fits of convulsions will probably not recur and there will be no ocular paralysis. In the tubercular form of meningitis there will be less fever than in pneumonia, accompanied with remissions.

It is interesting to note that there is one form of pneumonia in children which is associated with a number of nervous symptoms, it is that wherein the disease is chiefly confined to the apices of the lungs. In this vomiting is frequent, coming on suddenly, of a violent nature, and it may last for several days. This vomiting is probably due to cerebral irritation. Convulsions, too, are more common, thus simulating meningitis, and a transient hemiplegia has been described, though this must be rare.* This has been considered to be due to œdema of the brain and meninges, but it is questionable whether it may not, as Dr. Ashby has suggested with regard to hemiplegiæ after other febrile diseases, be owing to the action of the high temperature upon the blood-vessels of the brain.

In adults, as is so well described by Dr. Osler, there is a close connection between malignant endocarditis, complicated with meningitis and pneumonia. And pneumonia has frequently occurred in epidemic of cerebrospinal meningitis. In a short paper in the *Practitioner*† a year or two back I pointed out that the very difficulty

*Aufrecht. See ARCHIVES OF PEDIATRICS, vol. vii., No. 82 (October, 1890), p. 784.

†*Practitioner*, July, 1889, giving cases of pneumonia with delayed physical signs.

of diagnosing pneumonic cases, especially in children, at the outset from the resemblance they bear—and family resemblance, I believe,—to the acute specific fevers, notably to scarlet fever and acute rheumatism, is an additional reason for classing pneumonia among those acute fevers. It has a very definite course of fever, rising sharply and continuing high till the fifth, sixth or seventh day, this crisis corresponding very little, if at all, to the pathological condition of the lung or lungs. Thus at the crisis when the temperature is normal, the lung may be nearly solid and remain so for some days, while the respiration still keeps considerably quickened, so that, in all probability, the lung trouble is the local expression of a general disease, just as the membrane in the fauces is of diphtheria, or the inflamed Peyer's patches of typhoid fever.

Pneumonia, of course, generally is not infectious (nor is acute rheumatism), but epidemics not infrequently occur, wherein it certainly is infectious. Also if the further researches on the pneumococcus should settle its position as a prime agent in pneumonia another reason would be gained for the view above expressed, that pneumonia is an acute specific fever.

As to the *physical signs* of pneumonia but few remarks will be necessary. Perhaps the earliest sign, a kind of warning that something is amiss with the lungs, is a dilatation of the alæ nasi during inspiration. But the earliest sign of real value is the *increased resistance to deep percussion* which is produced by a *lung partly consolidated centrally*. This sign may be evident on the second or third day, and may precede any special râles, while bronchial breathing and bronchophony, as Dr. Hillier has noted, may not be heard under these conditions until the fourth or fifth day. Of course, as children's voices are so deficient in low-pitched notes, but little help comes from the vocal vibrations. And as pneumonia in children frequently begins centrally, consequently it is less often accompanied by pleurisy. There is little or no pain in the side, as remarked before, and I believe the absence of quickness of breathing depends greatly on the non-in-

vovement of the pleuræ and the non-fixation of the lungs. And there is not often the subtympapanic resonance over the apex in front of the affected side, which depends on the shutting off of vibration from half the lung and side of the chest. The apices are often attacked, as has been noticed above, so they ought always to be very carefully examined. Herpes labialis is common. The sputa are rarely in evidence till the child is over seven or eight, and there is fairly often a blush on the cheek on the affected side.

Here I may give three illustrative cases; one mild, of the ordinary type in children; one much more severe, showing where danger is mostly to be feared, and a third which, unfortunately, was fatal:

George Henry H——, aged two-and-a-half years. There was no difficulty about the diagnosis of this case, as he was not seen till the sixth day of his illness. On the 22d of September he was sick and very feverish, having been out of health for ten days previously. He had no appetite and wandered a little at night. On the 28th the notes of his condition are as follows: Pulse, 120; temperature, 103.6° (morning); respiration, 60; urine high colored, very acid. His tongue was covered with a thick, white fur; there was some dyspnœa, and the alæ nasi were dilating and contracting; a hard cough; his skin was dry and very hot to the touch; face flushed on both cheeks; eyes normal.

Physical Signs.—There was well-marked dulness over the lower half of the right lung behind, bronchophony and bronchial breathing there, with abundant moist soft râles. On the 29th he was a little better, having vomited a large amount of phlegm. The chest sounds much the same, only the râles were larger and more liquid. His pulse was 110, his temperature 102° (morning), and the number of respirations per minute 54. On the 30th he looked almost well; he had perspired profusely in the night, and his appetite had returned; his cough was much looser. His pulse was 100; his temperature was 98.6° (morning), and his respiration 40. He very rapidly got well, the temperature never rising again above normal.

The chief feature of interest in this case was the sudden restoration to health which occurred after the crisis

on the eighth day. This, I have noticed, seems generally to be the case with children with this form of pneumonia. The second case was much more serious.

William W——, aged five, on November 9th was sick and feverish and took no food at all. On November 10th he had been unconscious (so the mother said) all day. I saw him about 9 P.M., when he was semi-comatose, apparent amaurosis (when he was awakened) but no squint. His skin was burning hot and dry. He had vomited and been purged freely. He complained of great headache and of pain in his belly. There were no physical signs in the lungs nor any of dyspnoea. His pulse was 140, temperature 105.2° , respirations 36, urine high colored and acid. There was a family history on his mother's side of phthisis.

On the 11th he had had no more sickness, rather less pain, and he was more sensible; otherwise much the same. His pulse was 130, temperature 104.6° (morning), and respirations 40.

On the 12th the pain was seated under the lower border of the ribs on the left side. The skin was tender there. There was some crepitus over the base of the left lung behind, and a limited small area of dulness and bronchial breathing. He had developed a hard and dry cough, and his alæ nasi were dilating with each inspiration. Pulse was 134, temperature 103.4° (morning), and respirations had risen to 48.

On the 13th there was dulness over the left lung behind up to the angle of the scapula, and in front above the cardiac area to the second rib, and there was well-marked bronchial breathing and bronchophony in front and behind. The pain was still great. There was a small area of hyper-resonance below the clavicle. He had paroxysms of coughing and is occasionally sick, bringing up large accumulations of phlegm. His pulse was 146, temperature 103.8° , and respirations 46.

On the 14th his lips were rather blue. He seemed very drowsy; cough troublesome; a good deal of pain in his chest. The dulness extended almost to the apex of the lung. His pulse, which was very feeble, was 136, temperature 102° , and respirations 50.

On the 15th there was well-marked bronchial breathing over almost the whole of the left lung and the voice sounds were more distinct on that side; otherwise signs the same. He had a better night. His pulse was 130, temperature 100° , and respiration 52.

On the 16th he was rather collapsed. His respiration, which was 60 to the minute, was shallower; his cough was worse. He had wandered a little at night. The physical signs were unaltered, save for some coarser râles. The right side of the chest kept quite free from any abnormality. His pulse was 120 and temperature 101.6° .

On the 17th he was much better. His pulse, which was 121, has much more force. He had perspired freely in the night. Temperature 100° , respiration 56.

On the 18th, the tenth day of the disease, he was out of danger. He had slept well; wanted some food; perspired freely in the night; coughed less, and was altogether more comfortable. His pulse was 100, temperature 98.4° , respiration 40. The râles in his chest got louder and larger; the dulness gradually disappeared and he made a quick convalescence.

This case brings out very strongly one of the great dangers of pneumonia—a danger common to that of adults as well as of children, *i.e.*, heart failure. In the few remarks on treatment which will follow more will be said on this point. It will be noticed that at the outset the case was very much like one of meningitis; also later on that he had decided pleurisy with his pneumonia, so that the pain and dyspnoea were much more after the fashion of the pneumonia of adults.

The third case is that of Frank S—, aged fourteen months. On November 7th he had a fit of general convulsions, early in the morning; was sick and poorly all day, and was in a “burning fever” all through the night.

On the 8th he was a little better, but towards evening, when I first saw him, he had developed a cough, and, apparently, had a good deal of pain in his belly. His face was flushed, the *alæ nasi* dilating, and respiration, 50 to the minute, was labored. His pulse was 120, temperature 105.6° .

Chest.—On the left side there was less free expansion, marked dulness and resistance to percussion over the lower half of the left lung, behind, to the edge of the scapula. Coarse râles, bronchial breathing and bronchophony were present all over the same area, the difference between the voice sounds on the two sides of the chest being very evident. His tongue was furred and his skin hot and dry.

On the 9th he was a little better, and took his food well. The chest sounds were much the same, only the dulness had spread a little higher and the râles were fewer and less audible. His temperature was 103.8° , respirations (which were a great deal easier) 38, and pulse 110.

On the 10th, unfortunately, he was much worse. His lips were blue; he had more cough, though he seemed to have lost his pain in the belly.

Chest.—On the left side the same as before, but on the right side, nearly all over the lung, were coarse, crackling râles. There was no dulness. Temperature 106° , pulse 124, respirations 44. He rapidly grew worse and died early on the following morning.

The fatal result here was evidently brought about by the supervention of bronchitis on the right side of the chest, which is not very uncommon in pneumonia of children, and the child was literally suffocated. It was the more to be regretted, as he was making a very good fight with the pneumonia, which, quite possibly, might have aborted on the fourth or fifth day. Children, again, offer the most numerous instances of this abortive form of pneumonia.

Treatment.—In adults, especially in old people and in habitual drunkards, the prognosis of an attack of pneumonia is gloomy through the probability of heart failure. In children, happily, it is otherwise, but one example which I have given, out of several, may serve as a warning that, even in them, the state of the heart must be carefully observed.

Not long ago a very thoughtful paper was contributed by Dr. Dessau to the ARCHIVES OF PEDIATRICS,* urging that digitalis was unnecessary and positively harmful in the treatment of pneumonia in children. If the failure of the heart came on when there was evidence of great venous congestion, and accumulation of blood in the right side of the heart, this would, undoubtedly, be correct treatment, as we should do no good by increasing the force of the heart-beats, and so adding to the existing venous stagnation. But, taking a wider view of pneumonia, as I have

*September, 1891, vol. viii., No. 93.

tried to do hitherto, and considering the time and conditions of the heart failure, *i.e.*, at the crisis of the disease, we shall see at once, that the lung trouble is not the chief factor in its production. I look upon the failure of the heart as due to the action of a specific poison on the heart, just as much as the heart failure of diphtheria almost certainly is. Consequently a routine treatment of digitalis or, if preferred, by *tr. nucis vomicæ*, is in all cases where any tendency to such failure may be suspected, advisable; and in the crisis, a liberal allowance of stimulants will be most useful in tiding over small patients over a time of trial, and alcohol does good where it reduces the temperature in most cases of pneumonia. No trouble need be caused, either, by the thought that a taste for stimulants will be acquired, as the patients are far too ill to appreciate the medicine, as alcohol certainly is in these circumstances, and when they are convalescent my experience goes to prove that they never want to taste alcohol again. In an ordinary case a mixture of oxymel ipecacuanhæ, liquor ammoniæ citratis, spiritus etheris nitrosi, and if there be much cough, some syrup of squills or of tolu will be the best possible medicine. Linseed poultices relieve the pain in the side, if much be present, and frequently their place can be taken by a warm jacket of cotton wool, which has the great advantages of being light, of never growing cold and of not being damp.

Should sleeping draughts be given? I can see no good in a patient suffering from an exhausting disease, spending the whole or a large portion of his nights in rambling or actual delirium, or even in wakeful restlessness. So that I unhesitatingly give some harmless hypnotic; this used to be paraldehyde or sulphonal, but I am of opinion that chloralamide is better than either for safety and facility of taking.

Many points in the pneumonia of children have, from necessity, been left unmentioned. It is to be hoped that what has been said may not have been uninteresting and may prove fertile fields for discussion.

Clinical Memoranda.

CASE OF HYSTERECTOMY IN A CHILD OF NINE.

BY E. H. BRADFORD, M.D.,

Boston.

THE patient, apparently a healthy girl nine years old, was brought by her mother with no symptoms of a distressing nature, except the presence of a large tumor in the lower portion of her abdominal cavity. This tumor had been growing for some time (in the mother's opinion a year), but it had increased with rapidity in the past three months.

On a careful examination, by external palpation, a large mass could be felt through the abdominal wall, extending from one side to the other. In the middle the sulcus could be readily felt, but the two masses separated by this sulcus apparently were connected. The mass reached from a short distance below the umbilicus to the symphysis. The tumor extended laterally to the sides, but the exact lateral limits of the tumor could not be determined by palpation. The tumor was not fixed, was not tender, and there was no fluctuation. The veins on the abdominal walls were, in a few places, dilated, but not to a marked degree. The patient was able to play about readily, and had no discomfort, but was losing flesh, and from the reported rapidity of growth of the tumor it would appear that if any operative interference was to be undertaken the time for such an attempt had come. An exploratory laparotomy was, therefore, determined upon, with preparations for what other steps might be necessary. An incision was made from the umbilicus to within an inch and a half of the symphysis pubis. On opening the

peritonæum no fluid was found in the peritoneal cavity, but a hard mass was felt directly under the incision. The fingers were inserted for exploration, but no adhesions could be felt. Subsequently the incision was enlarged upwards to an inch above the umbilicus, the hand inserted, and the fact fully demonstrated that no adhesions were to be found except at the base of the tumor. The tumor, however, though movable to a degree, was quite firmly adherent at the base and was held at the sides. The broad ligament on the left side was divided and an attempt made to bring the tumor up into the field of the excision. This, however, was not entirely successful, even after the broad ligament on the right side had been divided. An adhesion was found near the base of the tumor fastening the intestine to the capsule of the tumor. This adhesion was quite broad and apparently was attached to a portion of the small intestine lying near the sacral prominence. At this point the capsule was divided and stripped off from the tumor, but allowed to remain on the intestine. Attempts were then made to bring the tumor up outside of the abdominal wall. It was found, however, that the tumor was friable, and a great deal of bleeding came from the torn surfaces injured by attempts to lift the whole mass. With some difficulty the tumor was lifted and a rubber tube placed round the base and further search made to reach the lower limits. The tumor was then pushed up by pressure from below, through the vagina, and the needles inserted as low as was possible and the wire of the ecraseur applied. The tumor was then cut off, the stump fixed extra-peritoneally and the abdominal wall sewn up, no glass drainage-tube being inserted. The operation was done in some haste in the latter part as the patient was losing blood, and it was thought that speed was indicated.

From the gross appearances of the tumor removed the following notes were made by Dr. Mallory, pathologist of the hospital:

Lobulated tumor.—About the size of the head of fœtus at full term. On one side ovary and tube were intact,

closely adherent to the tumor; on the other side only the fimbriated end of the Fallopian tube was present, attached to the surface of the tumor. On that side the ovary could not be found. The growth on the side apparently involved the broad ligament and a part of the Fallopian tube. The base contained about three-quarters of an inch of the body of the uterus imbedded in the mass



of the tumor. Microscopic examination of the lining membrane of the uterus and of its fibro-muscular tissues showed nothing abnormal, except at the edges in places where the outer tissue of the surface of the uterus was apparently invaded by the new growth.

Dr. Sears reported, after an examination of the tumor, the microscopical appearances as those of a papillary cystoma. The accompanying illustration indicates the microscopical appearances.

After the operation the clinical history was one of uninterrupted recovery. The child's pulse after the operation was very rapid, as it was during the latter part of the operation. This rapid pulse (160 and 100) persisted for some days and was probably due to the loss of blood and shock. The temperature was 102° for a day following the operation and then fell to 100° and normal. This gradually disappeared and the clamp of the ecraseur was removed at the end of a fortnight, the slough coming away at that time. The abdominal incision healed by first intention. At the end of four weeks the child was able to go about and at the end of five weeks to return home. A slight sinus remained at the point of the uterine stump for a week longer and then closed.

As the tumor was apparently entirely removed there is reason to hope that there may be no recurrence, as is sometimes the case with papillary cystoma, but the growth had been a rapid one, and the gross appearances there suggesting malignancy, but up to the present time, three months after operation, there had been no evidence of recurrence.

MEMBRANOUS CROUP.

BY W. A. CAMPBELL, M.D.,

Colorado Springs.

IT is not with the thought in mind that I will be able to present you with something new on the subject of membranous croup that I present this paper. The subject is one that has been written on extensively by men of experience for years past and one has but to review the literature of the day to see that much thought has been expended on trying to arrive at correct views as to the ætiology and treatment of the disease. This study and research is well in its place and could not be dispensed with, but when we come to the bedside of the little patients, we would often be thankful if we could call to mind the experience of others under like circumstances.

It is for the benefit of the physician and his little patients that I put on record the histories of the following cases :

CASE I.—Was called at 8 P.M., on February 7th, to see B—, æt. twenty months. Found that he had been complaining for three days past with general malaise, hoarseness, cough and fretfulness, which had gradually led up to the present condition. He had had an attack of scarlet fever about six weeks before. He had been under the care of a homœopathist since the beginning of the present attack. His condition was a pitiable one. He was making violent efforts to breathe, had stridulous respirations, anxious expression, ashen skin, blue lips, and recession of abdomen and suprasternal notch. Tonsils enlarged and red, but no membrane visible. Lungs clear of râles. Heart's action good; pulse 110; temp. 99°. Had been applying warmth to the throat. Treatment : Substituted cold compresses for the warm ones. Gave hydrarg. chlor. cor. gr. $\frac{1}{64}$ every two hours. Whiskey, $\frac{1}{2}$ dr. every two hours. The cold compresses gave relief to the dyspnœa and cyanosis to a marked degree. The child fell asleep and was left at 10 P.M. breathing fairly well and with good heart's action.

Feb. 8th, 7.30 A.M.—Symptoms much the same as on leaving last night. Child seems stronger and slept the most of the night. Râles in right lung. Pulse 120; temp. 100°. Treatment : Discontinued the cold compresses. Continued the bichloride and the whiskey with the addition of inhalations of steam from a tea-kettle in which some lime was slacking. This was accomplished in the following manner : The child was placed in a large arm-chair on pillows. To the back of the chair was fastened a hoisted umbrella and all over was thrown heavy sheets, which formed a complete canopy open in front to admit air. The kettle was kept on the stove and the steam conveyed to the tent by means of rubber tubing. By the breathing of the steam laden atmosphere the child seemed easier.

12 M.—Temp. 100°; pulse 126. Condition remains about the same. Takes nourishment and the medicines without any effort. Continued the bichloride and whiskey. Added menthol and eucalyptol to the steam spray.

6 P.M.—Had Dr. J. M. Keating to see the case with me. Child was breathing laboriously and was somewhat cyanotic. No membranes visible. Heart's action good,

pulse 120; temp. normal. The child took notice of things around him. We considered the child in a very critical condition and decided on tracheotomy as soon as other means had been given a sufficient trial. Was to push the bichloride and whiskey, and spray the throat with pancreatin, sod. bicarb. and hydrarg. chlor. mit. Without a struggle the child lay back and died in twenty minutes after we left the house. No autopsy.

CASE II.—Was called at 11 A.M., February 22d, to see Maud L—, æt. thirteen months. She has been a healthy child with the exception of an attack of influenza during December from which she had fully recovered. Found that she had been complaining for two days with symptoms of having taken cold and was hoarse, and coughed. Owing to the dyspnœa, the parents became alarmed and sent for me. Pulse 130; temp. 101.5°; resp. 35. *Alæ nasi* dilated with each inspiration. Slight recession. Râles in larger bronchi. Tonsils and pharynx red with a dirty white deposit on posterior pharyngeal wall. Child quite hoarse and unable to cry aloud when disturbed. Takes milk freely. Recognizing that I had to deal with membranous croup and remembering my recent experience, I determined on active measures. Internally, I ordered for the child $\frac{1}{48}$ of a grain of bichloride of mercury every hour, well diluted and two teaspoonfuls of whiskey every hour. Throat to be sprayed every hour with the following: Ext. pancreatin ʒi. , sod. bicarb. ʒss. , aquæ q. s. ad ʒiv. Poultice to thorax.

10 P.M.—Child breathing easier. Mother stated that the child on two occasions during the afternoon had thrown up considerable tough, stringy mucus after the use of the spray. Continued treatment.

Feb. 25th, 7 A.M.—Was restless during the night. Slept at short intervals. Pulse 126; temp. 100°; resp. 35. No membrane in the throat, tonsils and pharyngeal walls red. Râles moist in the lungs. Bowels acting freely with evidences of intestinal griping. Treatment: Continued same, added gtts. v camph. tr. opii to each dose of the bichloride until bowels were controlled.

6 P.M.—Pulse 120; temp. 99.5°; resp. 30. Cries louder and resists nurses more; breathes much easier. Sleeps but little and is easily aroused. Treatment continued. The nurse announced that the solution of bichloride was exhausted, the child having taken gr. i in thirty hours.

Feb. 24th, 8 A.M.—Pulse 120; temp. 98.5°; slept some during the night. Breathing free and easy. Less hoarse-

ness and less râles in lungs. Rather inclined to play. Discontinued the bichloride. From this time on the child continued to improve and had fully regained its health after one week.

You will see at once that there is nothing peculiar at all in the history of these two cases. They are simply typical cases of membranous croup, one terminating in death, the other in recovery, which is also nothing strange. The cause of death in the first case was evidently due to heart-clot, although a short time prior to death there was no evidence of its presence. This case shows how easily we may be led to defer operative procedures by the appearance of our little patient. The thought also comes to us as to whether the bichloride and the free use of stimulants at an earlier period would have accomplished any more good. Would intubation or tracheotomy have prolonged or saved this child's life? Was this child's croup in any way connected with the attack of scarlet fever of several weeks before?

Was the saving of life in the second case due to the prompt use of the bichloride in large doses? It will be seen that instead of getting $\frac{1}{48}$ gr. as intended every hour, she got $\frac{1}{30}$ gr. Was this too free dosage? She also took $\frac{3}{4}$ viii. of sp. frumenti in same length of time, which was quite liberal stimulation. Was the throwing off of the membrane due to the action of the mixture used in spraying the throat? Was this attack in any way dependent upon the attack of influenza during December?

These questions can only be answered by briefly considering the ætiology, symptoms, course and treatment of this disease. To be brief in my statements may make them seem rather dogmatic, I trust that you will view them in a proper manner.

I. That membranous croup and diphtheria are identical is a question that is still *sub judice*. All are united in saying that the clinical histories of the two diseases are similar and hence their treatment should be ; but the scientific verification of their identity is still needed. Croup does not appear to be so contagious, but this may

be due to the less area of the mucous membrane involved in the local inflammation and, hence a less amount of *materies morbi* is thrown off.

II. Those who recognize diphtheria and croup as identical aver that membranous croup is due to a specific exciting cause and this ætiological factor is what is known to the profession as the Klebs-Löffler bacillus. This is the most plausible theory and is adding to its adherents continually. By it and our knowledge of the germ diseases, the symptoms are most easily explained. Others think we can have croup without the presence of these bacilli. The predisposing causes are many; anything that will lower the vitality of the patient, and, hence, his resisting powers to the invasion of the micro-organisms, or will produce an irritation of the pharyngeal or laryngeal mucous membrane may be classified as a predisposing cause.

III. Croup is a local disease, characterized by the formation of a pseudo-membrane at the points of infection and accompanied with constitutional disturbances. These constitutional symptoms are due to the absorption of the products of the micro-organisms (the toxalbumens), or other poisons generated at the point of infection.

IV. Croup is one of the most fatal diseases of childhood. The younger the patient the higher the mortality. When the membrane forms in the larynx first the case is considered most favorable.

V. No disease has had a wider range of therapeutical preparations used in its treatment than diphtheria or membranous croup. As the various theories as to its cause has been advanced, the pharmacopœia has been researched for a remedy to meet the new ideas. Each drug in its day has had its advocates and strong adherents. With the advent of the theory of micro-organisms as the cause, yea, even before, on empirical grounds, many germicide remedies were used. At the present time the recognized treatment is both local and constitutional. In the local treatment we should seek to dissolve and remove the membranes and destroy the micro-organisms. Con-

stitutionally, we should try and fortify the vitality of our little patients against the poisonous effects of the tox-albumens and render them inert.

The bichloride of mercury is the most popular remedy at the present day. It is given internally and applied locally by means of the spray. To have the desired effect the system must be brought quickly under its influence. Children tolerate large doses. This was done in the second case given to-night. It must be given well diluted. The only deleterious effect noticed was its action on the bowels, which was easily controlled by the camph. tr. opii.

The inhalations of medicated steam in Case I. seemed to relieve the dyspnœa, but was not permanent in its effects. The cold applications gave as much relief but were also only temporary. The spray of pancreatin and soda in Case II. acted nicely in clearing the throat of membrane and was of material benefit.

Owing to the depressing effect of the toxalbumen on the heart, it is well to stimulate freely, and alcohol in the form of whiskey or brandy is the best agent for this purpose. In Case I. the amount administered was small; in Case II. it was rather free, but the child did not seem to get under the influence of the whiskey at any time during its administration.

Intubation or tracheotomy, no doubt, would have been the proper thing to have done in Case I. Tracheotomy was decided upon and would have been performed had there been any evidence of its immediate need. We thought to give other remedies a more extended trial to be best under the circumstances.

Many other remedies might be referred to as possessing virtues as curative agents in this malady, but since the object of our paper was chiefly to report to you the two cases and their treatment and not to enter into a lengthy paper, we will refrain from mentioning them. I trust that my experience in these cases will profit some one who has heard the reading of the paper and may sometime be put under the same trying circumstances.

CHRONIC INFLAMMATION OF THE METATARSO-PHALANGEAL ARTICULATION OF THE GREAT TOE.

BY ROBERT JONES, F.R.C.S.,

Liverpool, England,

AND

JOHN RIDLON, M.D.,

Chicago.

February 10, 1892.—J. R., male, fifteen years old, kicked a stone with the right foot five months ago. A month later the great-toe joint became stiff and swollen and has grown gradually worse since that time. Various things have been done for it, but has had no systematic treatment. The joint is now swollen to about twice its normal size, and is red and tender to pressure; there is no motion at the joint and any attempt at motion causes pain; he walks with great difficulty and suffers much; the toe is flexed on the metatarsus about forty-five degrees. The whole foot and leg to the garter-line is now enveloped in a plaster-of-Paris dressing, and the patient is allowed to walk upon a sandal with a wooden sole an inch and a half thick extending forward only to the ball of the foot. On February 24th the foot was redressed and the toe partially replaced. On March 9th the dressing was again changed and the toe raised to the normal plane of the sole; less swelling and considerable motion. March 23d. Swelling and tenderness wholly absent, and nearly normal motion possible without pain and with scarcely any spasm. The plaster dressing discontinued. The shoe is built up posterior to the point affected to the height of one inch. May 22d. There is now no evidence of disease remaining.

The principle of treatment is the same as applied in chronic inflammation of any other joint, namely: immobilization, removal of weight, and a mechanical device so arranged that motion is impossible during locomotion. By the ordinary methods of treatment the metatarso-phalangeal joint of the great toe is less easily controlled than almost any other joint during locomotion, but by the simple device of putting a block from an inch to an inch

and a half thick under the foot posterior to the joint the desired result is perfectly accomplished. It would be interesting to know if the disease in the case reported was tubercular. It certainly presented all of the diagnostic characteristics of a tubercular joint, and if left untreated would without doubt have come to excision after some months and then been found to be tubercular.

HEMIPLEGIA COMPLICATING OTITIS MEDIA SUPPURATIVA.

BY GEO. N. ACKER, A.M., M.D.,

One of the Attending Physicians of the Children's Hospital and Garfield Hospital,
Washington, D. C.

NOVEMBER 8, 1891, I was called to see R. J. White, female, two years of age. Was informed by the mother that she had vomited in the morning and complained of pains in the head. I found the throat congested and tonsils enlarged. Skin warm. Pulse 105. Bowels open.

R. Potass. chlor. gr. i., sacchr. alb. gr. ij. every two hours. The previous history of this case is as follows: In the summer of 1890 had pertussis. In November, 1890, had a light case of scarlet fever. In September, 1891, I treated the child for a fetid discharge from the left ear. The mother did not know when it had commenced but dated it from the attack of scarlet fever. I gave her a tonic and ordered the ear to be syringed out with a warm boracic acid solution. The discharge gradually disappeared. She was well nourished and had all her teeth.

9th.—Pulse 105; temp. 102°. Continued to vomit during the night. Does not retain anything except a small amount of oatmeal and milk. Kept on this and sterilized milk.

R. Pulv. pepsin comp. gr. v every three hours. Mustard plaster to stomach.

There has been no discharge from the ear for some time. Ordered it to be syringed with the warm boracic acid solution.

10th.—About the same but vomits less. Puts hand to left side of head. Shades her eyes from the light with

the hands. Pupils normal. No congestion. The ear has not discharged.

11th.—Does not vomit. Skin warm. Pulse 105.

12th.—Very restless. Pulse 110. No tenderness about ear. One-sixth grain of calomel every hour caused a dark natural stool. Ung. belladonnæ about the ear. R. Potass. bromid. gr. v every two hours.

13th.—Same condition.

14th.—Brighter. Opens eyes. Takes nourishment. Puts hand to left ear but does not exhibit pain if the ear is pressed.

15th.—Much brighter. Less restless. Pulse 100.

16th.—Left internal strabismus. Sighing respiration. Pulse 110; temp. 101°. No discharge from the ear. Tinct. iodine to be painted behind the ear. Bromide continued. A few one-sixth grain doses of calomel produced a good stool.

17th.—About the same condition. Pulse 110.

18th.—Pulse 110; temp. 101.5°. Dr. S. C. Busey saw her with me in consultation. Dr. S. M. Burnett made an examination of the ear. He thought that there was not any mastoid disease, but that the meninges had become affected from the attic. Does not recognize persons. Had a stool.

19th.—Temp. 100.5°; pulse 110. Less restless. Respirations slow and sighing. Eyes less crossed.

20th.—Eyes slightly crossed. Pupils slow to respond to light, but they appear normal. Dull. Temp. 100.5°; pulse 120. Moving left arm and leg all the time. Right side does not move. Tongue turns to the left. No tenderness about the ear. R. Potass. iod. gr. ij every two hours. R. Ext. ergotin fld. gtts. v every two hours.

21st.—Edema of the lungs. Increased flow of saliva. Eyes congested. Thin discharge from nose. Stopped potass. iodide. Continued the ergot. Gradually becoming weaker. For days she has been taking small amount of oatmeal and milk. Will not take anything else. She appeared to get better towards night and the lungs became clearer.

22d.—Passed a bad night. Unconscious. Died at 10 A.M. Necropsy not permitted.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

*Stated Meeting, May 12, 1892.*WILLIAM P. NORTHRUP, M. D.,
*Chairman.*F. M. CRANDALL, M.D.,
Secretary.

Ranula.—Dr. J. Lewis Smith presented a female child aged twenty months, which had a bilateral swelling under the tongue. It probably was congenital, for the mother had noticed it as early as the second or third month. It had attained a size sufficient to keep the mouth constantly open. It seemed to be more or less vascular for vessels of some size radiated from it on the under surface of the tongue. He asked for suggestions in treatment.

Dr. Simon Baruch would prefer excision of a portion of the sac to twisting a silver-wire suture passed through it with a view of obliterating the sac. He thought there would be little danger from hæmorrhage attending excision.

Microcephalus.—Dr. Henry Koplik presented a baby aged four months, child of Polish parents, which had a head so small that it could be covered by the palm of the hand. Further points of interest in the case were a left facial paresis, lack of development in the peronei muscles, increased knee reflex, spastic contractions in the muscles of upper and lower extremities, nystagmus on attempting to look to the left, spastic return of the jaw when opened.

He inquired whether Lannelongue's operation of craniectomy would be advisable, and at the same time expressed his own doubts.

Dr. W. M. Leszynsky had within a week seen one case operated upon by the Lannelongue method, and heard of another recently so treated, both of which ended fatally. The operation was dangerous. He would not recommend it in this case.

Summer Diarrhœa in Children Under Two Years.—Several papers were read on this subject, the first being by Dr. H. D. Chapin, on "The Relation of the Stools to

the Lesions, Their Character and Location; Prognosis; Nervous Symptoms; Their Origin; Complications."

He said that where the irritation and inflammation existed in one of the two extremities of the intestinal tract the discharges would pretty surely indicate the location of the lesion. In a large part of the intermediate tract, however, it was often impossible to judge of the exact location by the character of the stools. One could often find no lesion in intractable diarrhœa, whereas a mild diarrhœa might be attended by perforating ulcer and death. A study of the stools along with the symptoms would usually afford a valuable basis for classification and treatment. There were three forms of diarrhœa: 1, the diarrhœa of acute indigestion; 2, the diarrhœa of inflammation; 3, that of chronic indigestion or apathy.

In the diarrhœa of acute indigestion the discharge at first was composed of thin fœcal matter, more or less profuse, soon became watery, undigested particles were pretty constantly noticed, starchy food or milk might be unchanged, a green mucus was apt to appear. It was hard to say when a "physiological diarrhœa" passed into a pathological condition. When milk was stopped or broth was given the stools might become more watery and be very offensive. As the diarrhœa continued, mucus became more important. When the ileum and upper part of the jejunum were involved, the mucus would probably be bile stained and mixed with undigested fæces. Where the lower bowel was involved the mucus was less mixed. Blood might be present, and was more distinct when it came from the lower rectum. White, dry, putty stools were chiefly from fermented fat." The cause of green stools had been much in controversy. The bulk and character of the stools varied further with their frequency.

The information to be gained as to the extent and character of the lesions from an examination of the stools was, in his observation most unsatisfactory. He had frequently been surprised to find ulcers at autopsy when he had not suspected them during life. Where there was

rapid loss of vitality out of proportion to the number and character of the stools he suspected ulceration. In cholera infantum the profuse and violent character of the discharge was out of proportion to the change found in the bowel at autopsy. But the past two or three summers he had seen not more than two or three such cases, showing their rarity.

The most inveterate form of infantile diarrhœa, that which was most difficult to treat, was chronic diarrhœa with indigestion. It might be connected with bad environments, with tuberculosis, intestinal lesions, syphilis, etc. There might be a brief improvement, but a relapse would take place, and the little patients being utterly unable to nourish themselves passed into a state of exhaustion. The underlying cause seemed to be defective vitality, which might be hereditary or acquired or both.

Speaking of cerebral disturbances, he said that cerebral thrombosis from feeble heart action was not seen at autopsy as frequently as it had been supposed to exist. The brain was peculiarly soft after death from diarrhœa, there was more or less passive congestion in the cerebral veins and some serous effusion over the convolutions, uræmic poisoning might occasionally be accountable for brain symptoms for he had a number of times found changes in the kidneys; or the symptoms might be due to toxic material. The lungs were apt to become involved in continued diarrhœas. A catarrhal pneumonia might exist in these patients and produce so few active symptoms as to be overlooked.

Drugs: Indications for Alkalies, Acids, Astringents and Opiates.—Dr. J. M. Abbott read a brief paper with this title. Regarding antiseptics and antizymotics, from which so much had been hoped for a short time ago, they had proven disappointing. He classed bismuth not with the antiseptics, but with the astringents, although its method of action was imperfectly understood. Still, bacteriological studies had not proven without value, for although antiseptics taken internally had failed, yet the value of asepsis had been impressed.

For removal of the cause of the disease an evacuation should always be induced as the initial treatment, and it might be desirable after a day or two to repeat it. Calomel, rhubarb and castor oil were the favorites. Alkalies had come to be regarded as of less importance than formerly, for infants lime-water should be added to the cows' milk. Also pepsin or pancreatin. The indications for acids in acute cases were to his mind very doubtful. Vegetable astringents were used less than formerly. Among mineral astringents, subnitrate of bismuth seemed to be most esteemed. Ten grains every two hours for an infant was now considered more efficacious than smaller doses.

Opiates were less used than formerly. They might be prescribed where indicated to relieve restlessness, pain and watery stools. Paregoric, deodorized tincture of opium, and opium and ipecac were favorite preparations. They should be employed with caution, yet were needed in most cases. One should not forget that infants, although too young to complain, were not too young to suffer, and the amelioration of suffering was a duty.

Hygienic Symptoms Demanding Bathing and Change of Air.—Dr. Simon Baruch read on this subject. He said that the conditions demanding a change of air were in part high temperature, excessive humidity and impurity. Whenever the usual treatment seemed unavailing, especially when there was extreme prostration, change of air was important. Poor light might also be included. A change to the seaside or to a high altitude was frequently imperative. In cities noise was another reason for a change. For the cure and prevention of summer diarrhoea, it was necessary that clean food enter a clean stomach, and that detritus be removed from the intestinal tract. As an example of the good which could be accomplished by a change of air, etc., under unfavorable circumstances, he referred to the work of the St. John's Guild. While in tenement house practice a change, if possible, was usually imperative, yet where patients were more favorably situated, a change of environment should

not be advised without some knowledge of the proposed new surroundings. Proper food and a clean intestine were of far greater importance in these cases than a change of air.

As to baths, in acute cholera infantum they gave more positive relief than all other methods. In this condition the temperature in the rectum was almost always high. The child should be put full length in a tub of water, with the head and face bathed in ice-water. The temperature of the bath should be gradually lowered to 80° F. If there were marked cerebral disturbance water of 60° might be poured over the head and shoulders. If the temperature were above 103°, the child should be taken out at the end of fifteen minutes and rolled in a blanket and allowed to dry, but if below 103° it should be rubbed dry and clothed at once. In his experience the bath had been an inestimable boon in summer diarrhœa. He no longer saw spurious hydrocephalus in this disease. In those forms of diarrhœa sembling chronic adynamia from innutrition, general ablutions night and morning were preferable to baths. Yet if the temperature reached 102° the general bath was indicated. No case should be regarded as intractable or too desperate. He spoke highly of rectal douches.

Feeding Sterilized Milk.—Dr. Henry Koplik, speaking upon this subject, said he would consider only some of the new points connected with the sterilization of milk.

Sterilized milk was tolerated by the stomach better than any other food except mother's milk. It had been shown comparatively recently that the milk could be sterilized sufficiently by raising it to 70° C., instead of carrying it to the boiling point, and was about three times as easily digested by the child's stomach. They had given out a great deal of milk, sterilized at a temperature below the boiling point, at the Good Samaritan, and had found the children thrive much better on it than on other food. It would be desirable, if one had a freezing apparatus to rapidly cool the milk after sterilizing it. He objected to the method of resterilizing milk, or of trying

to keep it for days. It was unnecessary and undesirable to keep it longer than thirty-six hours. Milk brought to the city was seldom under twenty-four hours old. Dairy-men were often unscrupulous and preserved their milk by adding some drug. This was shown by the fact that the milk often tasted sweet, but curdled on undergoing the sterilizing process.

Referring to commercial foods, he said that in six children taking such foods five had dietetic glycosuria, while he had found this in none who were fed on milk.

Dr. J. Lewis Smith asked how long the milk should be sterilized, and said that three years ago he used to give instructions to let it boil two hours, while now he recommended twenty to thirty minutes.

Dr. Koplik replied that he used the Arnold steam sterilizer, employed the low temperature named, continued it twenty to thirty minutes. The lid could be raised, allowing the steam to escape when there was danger of too great heat. He never peptonized milk.

Dr. A. Jacobi, being requested to express his views, said they were contained in his little book on the intestinal diseases of children. He condemned the artificial foods in the market. Sterilization of milk as now practiced certainly rendered good service, but he hoped it would not be forgotten by any that sterilized milk was still only cows' milk. This required modification in order to be suitable food for children. A good food for a baby did not mean one which simply did not kill. It was one which permitted it to grow up healthy and strong. When cows' milk was alkaline it probably had been doctored. The worst drug was bicarbonate of soda. Instead of preventing the formation of ptomaines, which constituted the injurious properties of bad milk, it favored their formation by rendering the milk alkaline. Pepsin had been recommended highly by some, and they were frequently used, but Dr. Jacobi said that nothing was more inert than pepsin without hydrochloric acid. Gastric juice meant pepsin and hydrochloric acid. The best thing recommended during the evening were intestinal

irrigations, advised incidentally by Dr. Baruch. Besides cleansing the canal, much of the fluid was absorbed. This was very desirable since many babies perished simply because there was not enough in the blood-vessels to fill them.

It was still the custom to add milk sugar to cows' milk, but this was a mistake, loaf sugar would do better. Digestion began with lactic acid, afterward hydrochloric acid was added, and lactic acid and milk sugar were chemically identical.

Dr. Abbott inquired of Dr. Jacobi whether the pepsin acted before the hydrochloric acid; since the latter followed lactic acid.

Dr. Jacobi thought that lactic acid appeared first, pepsin and hydrochloric acid afterward in the process of digestion, although there might always be some pepsin present.

SYNOPSIS OF DR. F. E. WAXHAM'S REPORT OF FOUR HUNDRED CASES OF INTUBATION OF THE LARYNX WITH PRACTICAL DE- DUCTIONS.*

Of the four hundred cases reported there were:

Under one year,	12	cases with	4 recoveries,	or	33 $\frac{1}{3}$	per cent.
At one	" 52	" "	12	" "	23.07	" "
" two	years 70	" "	18	" "	25.71	" "
" three	" 69	" "	27	" "	39.10	" "
" four	" 79	" "	30	" "	37.97	" "
" five	" 39	" "	18	" "	46.15	" "
" six	" 25	" "	7	" "	28.	" "
" seven	" 25	" "	10	" "	40.	" "
" eight	" 10	" "	6	" "	60.	" "
" nine	" 6	" "	3	" "	50.	" "
" ten	" 5	" "	2	" "	40.	" "
" eleven	" 1	" "	1	" "	100.	" "
" twelve	" 2	" "	0	" "	00.00	" "
" thirteen	" 1	" "	0	" "	00.00	" "
" fourteen	" 1	" "	0	" "	00.00	" "
" twenty	" 1	" "	0	" "	00.00	" "
" forty-three	" 1	" "	1	" "	100.00	" "
" sixty	" 1	" "	0	" "	00.00	" "
Totals,	400		139		34.75	

* Read at the meeting of the American Medical Association, June 7, 1892.

These operations were performed *without selection* upon all cases suffering from laryngeal obstruction, without reference to age, malignancy, or unfavorable surroundings. One hundred and thirty-four were under the age of three years, with recoveries amounting to 25.37 per cent., an age at which tracheotomy is rarely successful.

In the first one hundred cases there were twenty-seven recoveries; in the second hundred cases there were thirty-four recoveries; in the third hundred cases there were forty recoveries; in the fourth hundred there were thirty-eight recoveries.

Improved instruments, improved methods of feeding, greater watchfulness and judgment in the management of cases and the almost universal administration of bichloride of mercury after the first hundred cases undoubtedly accounts for the better results.

Why is it that we so frequently hear of unfavorable experiences and poor results?

First, on account of the difficulty of the operation. Second, because judgment is not exercised in the selection of the proper tube. Third, patients are frequently allowed to die from obstruction below the tube, which in many cases can be overcome. Fourth, on account of the absence of careful nursing and the most watchful attention.

Undoubtedly this operation requires more delicacy of "technique" than almost any other operation in surgery. It is an operation for the specialist, the expert and those especially dextrous if best results are to be obtained. Too frequently operators without special aptitude and with no training whatever, attempt the operation. The results are disastrous, and after a few trials the operation is denounced. In every city this work should be done by *one or two* operators, who would soon acquire sufficient experience and skill as to insure splendid results.

In country districts or small towns, tracheotomy will be found to be far more satisfactory, as no one can become skilful and maintain confidence in doing the operation on one or two cases a year.

The result will depend in no small measure upon the judgment exercised in the selection of the proper tube. A loosely fitting tube, one that can be easily expelled in case of obstruction below it should *always* be selected. The attendant should be instructed to invert the patient and facilitate its expulsion by shaking the patient, or by crowding it out by pressure upon the trachea below the tube, in case of emergency.

The tube should always be extracted when there is evidence of membrane below it. The expulsive cough that follows will expel a membranous cast in the great majority of cases. Many lives will be saved by promptly removing the tube when danger of obstruction threatens.

Careful nursing, forced feeding in the inclined position, and the faithful continuance of treatment after the operation, will have an important bearing on the result. The continuous use of the steam atomizer, the internal administration of iron and bichloride of mercury in full and frequent doses, and the local use of peroxide of hydrogen and bichloride of mercury by means of the hand atomizer are believed to be most important methods of treatment.

MINUTES OF THE FOURTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

Held in Boston, Mass., May 2, 3 and 4, 1892.

First Day—Afternoon Session.—The President, Wm. Osler, M.D., of Baltimore, Md., called the meeting to order at four o'clock; in the Hall of the Boston Medical Library Association.

The following members, besides a large number of visiting physicians, were present: S. S. Adams, M.D., Washington; A. D. Blackader, M.D., Montreal; W. D. Booker, M.D., Baltimore; E. M. Buckingham, M.D., Bos-

ton; Augustus Caillé, M.D., F. M. Crandall, M.D., New York; Chas. Warrington Earle, M.D., Chicago; L. Emmett Holt, M.D., Francis Huber, M.D., New York; Henry Jackson, M.D., Boston; A. Jacobi, M.D., Henry Koplik, M.D., William P. Northrup, M.D., New York; Wm. Osler, M.D., Baltimore; C. P. Putnam, M.D., T. M. Rotch, M.D., Boston; K. B. Rachford, M.D., Newport, Ky.; A. Seibert, M.D., New York; C. W. Townsend, M.D., Boston; Wm. Perry Watson, M.D., Jersey City, and J. E. Winters, M.D., New York.

On motion, the minutes of the last annual meeting were approved as published in the ARCHIVES OF PEDIATRICS, November, 1891.

On motion, it was ordered that all the papers presented to this meeting with the discussions thereon be furnished exclusively to the ARCHIVES OF PEDIATRICS for publication therein; the publishers in turn agreeing to make three hundred bound reprints thereof for the Society free of all expense, and similar to those furnished at the last meeting.

The President, Wm. Osler, M.D., then delivered his annual address, "Remarks on Specialism."

Dr. Augustus Caillé then read a paper on "Experiments as to the Value of Nascent Ozone in Certain Forms of Diseases of Children, with Demonstration of an Efficient Generator," which was discussed by Drs. Holt, Rotch, Northrup, Blackader, Louis Fischer, of New York, and Rachford.

Dr. Chas. Warrington Earle then read a paper on "Manifestations of La Grippe in Children," which was discussed by Drs. Rotch, Jacobi, Caillé, Huber, Holt, Adams, Blackader and Booker.

Dr. Chas. P. Putnam then read a paper on "An Epidemic of Alopecia in a School of Girls," which was discussed by Drs. Bowan and White, of Boston, and Jacobi.

On motion, the Society adjourned at six o'clock.

Second Day—Morning Session.—The Society was called to order by President Osler at ten o'clock.

Dr. Jacobi reported a "Case of Hydrorrhachis and Hydrocephalus," with specimens, which was discussed by Drs. Holt, Osler, Koplik, Blackader, Caillé and Northrup.

Dr. W. D. Booker then read a paper on "The Relation of Pseudo-Diphtheric Angina to Diphtheria."

Dr. Henry Koplik then read a paper on "Forms of Diphtheria which Simulate Simple Angina."

Dr. Francis Huber then read a report of "Two Tracheal and Bronchial Casts," with presentation of specimens.

A paper on the "Diagnosis of Diphtheria," by Dr. J. Lewis Smith, was, in the absence of the doctor on account of illness, read by title. The President then announced that these papers were open to discussion, which was participated in by Drs. Caillé, Seibert, Louis Fischer, of New York, Earle and Jacobi.

Dr. T. M. Rotch, of the Committee on "Nomenclature of Stomatitis" reported progress.

On motion, the Society adjourned at 1.30 P.M.

Second Day—Afternoon Session.—The Society was called to order by Dr. Jacobi, in the absence of the President, at three o'clock.

Dr. William P. Northrup then read a paper on "Typhoid Fever in Children under Two Years." Dr. Chas. Warrington Earle then read a paper on "Typhoid Fever in Children." A paper on "Typhoid Fever in Infancy," by W. S. Christopher, M.D., of Chicago, was then read by Dr. Watson. The acting President then announced that these papers were open to discussion, which was participated in by Drs. Koplik, Jacobi, Blackader, Winters, Huber, Seibert, Adams and Rotch. Dr. Osler arrived and took the chair. Dr. B. K. Rachford then read a paper on the "Anæmia of Tuberculosis," which was discussed by Drs. Louis Fischer, of New York, Osler and Rotch.

Dr. Chas. W. Townsend then read a report of a "Case of Sporadic Cretinism," which was discussed by Drs. Huber, Earle, Osler and Rotch.

On motion, the Society adjourned at 6.30 o'clock.

Second Day—Evening Session.—A business meeting was held at the residence of Dr. T. M. Rotch, No. 197 Commonwealth Avenue, at eight o'clock.

In the absence of the President, Dr. T. M. Rotch was elected to the chair.

The Council reported the following nominations to office and membership, which were unanimously approved:

President, A. D. Blackader, M.D., Montreal; First Vice-President, John M. Keating, M.D., Colorado Springs; Second Vice-President, Chas. Warrington Earle, M.D., Chicago; Secretary, S. S. Adams, M.D., Washington; Recorder, Wm. Perry Watson, M.D., Jersey City; Treasurer, Chas. W. Townsend, M.D., Boston.

Member of Council, T. M. Rotch, M.D., Boston.

Membership, J. P. Crozer Griffith, M.D., Philadelphia; T. F. Sherman, M.D., Boston.

Resignations were received and accepted from O. P. Rex, M.D., Philadelphia; A. V. Meigs, M.D., Philadelphia.

The following amendments to the Constitution proposed at the last meeting were adopted as amended, viz.: To Art. VIII. "The membership shall be limited to sixty, and that every applicant for membership shall accompany his application by printed copies or references thereto of papers published by him and of the official positions held by him, as well as such other scientific work in pediatrics as he may have accomplished; and, furthermore, that membership shall be completed by the signifying of acceptance of election and a payment of an initiation fee of ten dollars." To Art. XII. "Or for non-payment of dues for one year, two notifications being given."

On motion it was ordered that the place of meeting in 1893 shall be at least thirty miles from New York City, and that its selection and the time thereof be left to the Council.

On motion, the Society adjourned at nine o'clock.

Third Day—Morning Session.—The Society was called to order by the President at ten o'clock.

Dr. Seibert then read a paper on "Syphilitic Broncho-Stenosis in Children," which was discussed by Drs. Caillé, Louis Fischer, of New York, and Jackson.

Dr. S. S. Adams then read a report of "A Case of Death from Laryngismus Stridulus in Incipient Rachitis," which was discussed by Drs. Huber, Earle, Blackader, Caillé, Seibert, Koplik and Jacobi.

Dr. Francis Huber then read the report of a case of "Sacro-Coccygeal Tumor in a Child Three Weeks Old; Operation; Recovery."

Dr. A. Jacobi then read "A Note on Peroxide of Hydrogen," which was discussed by Drs. Caillé, Blackader, Seibert, Buckingham, Koplik, Huber and Earle.

The subject for discussion arranged by the Council on "The Relation of Rheumatism and Chorea," was then opened by Dr. Chas. W. Townsend, who was followed by Dr. F. M. Crandall and Dr. S. S. Adams.

The general discussion was then participated in by Drs. M. Allen Starr, of New York (in a letter to the President), Jacobi, Holt, Booker, Louis Fischer, of New York, and Osler.

On motion, the Society adjourned at 1.30 o'clock.

Third Day.—Afternoon Session.—The Society was called to order by President Osler at three o'clock.

Dr. T. M. Rotch read a paper on "The Value of Milk Laboratories for the Advancement of Our Knowledge of Artificial Feeding," which was discussed by Drs. Booker, Koplik, Jackson, Holt, Blackader, Jacobi and Osler.

Dr. L. Emmett Holt then read a paper on "Clinical Examination of Breast Milk," which was discussed by Drs. Charles Harrington, of Boston, Rotch and Blackader.

Dr. Henry Jackson then presented resolutions on the death of John Amory Jeffries, M.D., late member of this Society, which were spoken to by Drs. Adams and Rotch.

Dr. Holt, on behalf of the Auditing Committee, reported that the accounts were found correct.

Dr. S. S. Adams then moved that the Society express its thanks to the President of the Medical Library Association for the use of their room, and to the local committee for their kindness in taking care of the Society. Carried.

Dr. T. M. Rotch then moved the thanks of the Society to the retiring President for the courtesy and skill with which he has arranged our meetings. Carried.

Dr. A. D. Blackader said: "On the part of the strangers to Boston I desire to express our gratitude for the extreme courtesy that the Society has shown us."

Dr. T. M. Rotch said: "The Boston members feel grateful to the members outside for coming to our meeting and making it a success."

The President, Dr. Wm. Osler, said: "I congratulate you, gentlemen, on the success of the meeting, and now declare the meeting adjourned *sine die*."

WM. PERRY WATSON, M.D.,
Recorder.

Foreign Correspondence.

LETTER FROM PARIS.

(Special Correspondence to the ARCHIVES.)

Transmission of Chorea from Dog to Dog by Inoculation—Gonorrhœal Rheumatism in Children—Croup and Its Treatment—Teeth and Growth Fever—Treatment of Whooping-Cough in 1892—Tapeworm Treatment of Infantile Paralysis—Treatment of Rickets.

BY THOMAS LINN, M.D.,

Nice, France.

Transmission of chorea from dog to dog by inoculation.—Professor C. Richet (Prof. of Physiology, Paris.) and one of his students has succeeded in transmitting chorea in this way, by using cultures obtained with the blood of a dog that had chorea. After having obtained the blood with great care they cultivated it and got a fertile culture and this was inoculated in three other healthy dogs. The first one was already afflicted with

chorea and he got rapidly worse, instead of better, and died soon afterwards. The second one also died quickly, and the third one is still alive, after six months, and has dancing chorea, just like the disease as seen in the dog when developed spontaneously. This dog is about three years of age. This interesting experiment will soon be followed by others, and may result in something good in this disease. M. Nocard, however, remarks that if it is done in very young dogs, that one may mistake it for the usual dogs' disease (mange, etc.), which often presents the symptoms of chorea, therefore older dogs should be used.

Gonorrhœal rheumatism in children.—M. Béclere reports two cases of this disease and says that it is often passed over or not sought for, but that it is more frequent than is supposed.

The first one was a girl of five-and-a-half years of age who was found with radio-carpal arthritis and tendinous synovitis and coming from the vulva a thick greenish pus was seen, while micturition was painful. Immobilization of the articulation and compression with cotton brought about a cure in two weeks. If such a case was seen in a woman there would be no difficulty in saying that it was of gonorrhœal origin. The second case was one of a little girl of only twenty months old who had a monothibio-tarsien arthritis and urethritis. This child slept with its mother who had a running from the vagina, and contagion was no doubt contracted by contact in the bed from the mother. It cured in a week. The urethritis and vulvo-vaginitis seen in little girls whether they are consecutive to rape or produced by maternal contamination, or by the towels, sheets, etc., are very often of a gonorrhœal nature, and there is nothing strange in the fact that rheumatism of the same nature should be found in even very young children. Some cases of this kind were related in the *New York Medical Journal* by Koplik.

It is possible also that this trouble can be found in children without any urethral running, for instance, in purulent ophthalmia of the newly born, as Deutschmann has shown.

Croup and its treatment.—M. Ragoneau gives five cases that were all treated and cured by the following method: Give from two to five drops of this mixture, three times a day, in a little sugared water.

R	Tincture belladonna,	} à 5 grammes.
	Tincture valerian,	
	Tincture aconite,	

Then every morning and evening spray three or four minutes with this mixture :

℞ Bromide of camphor, 5 to 10 grammes. } According to
Chloral hydrat., O. 50, to 2 grammes. } age.

This solution is to be used iced and the child can suck ice during the day.

Then every two hours brush the throat with this solution:

℞ Chloride of zinc, 1 gramme.
Pure glycerine, 15 grammes.
Distilled water, 15 grammes.
Acid hydrochlor., 2 drops.

This application is not painful.

The author does not allow any effort to produce vomiting to be made as it only brings on spasmodic coughing he says.

Then as to tracheotomy, he prefers dilatation of the glottis by a metallic dilating instrument or by a bulb-shaped instrument which is mounted on a flexible handle.

Teeth and growth fever.—Dentition and growth have for a long time back in medical writings, and even now, at least the public still think, that these two factors are important ones in all the fevers seen in children. But the truth is that dentition fever no more exists than growth fever. What is called by these names is no more or less than a mistake or ignorance in diagnosis. To make a diagnosis of dentition fever, reliance has been placed on the increase of heart pulsation, so often seen in children from all sorts of causes, and heat of the skin, with agitation which also comes from a number of other reasons than the teeth, but no one has come forward with any thermometric traces to prove this disease. *It in fact does not exist.* As to growth it also has no action in determining fever, no more than pregnancy, puberty, or senility which are given as probable causes of fever. It is quite possible to find out and give good reasons for fever in children, without falling back on these exploded ideas. The authors who have admitted these forms of fever as a morbid entity based their ideas on the acute fever, either rapid or prolonged, and on certain pains which are either spontaneous or can be produced and are called "*growing pains.*" But this collection of symptoms by no means is an excuse for making two separate or even one fixed disease. All of them are common to many real existing troubles such as slight fever, fatigue

fever, the weak state of typhoid, slight articular rheumatism, intermittent fever, malaria and osteo-myelitis, etc. *To sum up there is no such thing as dentition or growth fever.*

The treatment of whooping-cough in 1892.—Dr. Gillet gives a very interesting review of this treatment. It would seem that after Afanasiew's discovery of the pathogenic agent of this disease that to destroy the bacillus would be the thing to do, but after many trials of all the antiseptic substances *no specific has been discovered*, and most physicians have now concluded that the antiseptics are only of use against complications, and not to cure the malady. Liebermeister gave the tannate of quinine as a sure cure, but it is by no means certain. With antiseptics and isolation M. De Gassicourt gets eight cures out of ten cases, and in former days he had eight deaths in the same number. Cases of this trouble must be isolated and should never stay in the same wards as the other patients. This is the key of the prophylaxis of the disease. Professor Baginsky (of Berlin) has separate rooms for all cases of *all* infectious diseases in children. If our efforts against the bacillus itself have been without result what can be said of those directed against the poisons that it eliminates? It is hoped something is being done for this second indication. For the moment we can at least *favor the expulsion of the pathogenic element* which indeed is what we did before we knew bacteriology, by giving something to expulse the mucus formed. Ipecacuanha must not be overdone, however, and scillitic oxymel has been praised. As we are not sure of doing anything against the pathogenic element but this, we can at least act against the *inflammation of the mucous membranes* and try to *calm the cough*. The therapeutics of the catarrhal phase of the malady consists of the use of expectorants, such as ipecac in infusion, benzoate of soda, or else the carbonate of potassa, as follows :

R Carbonate of potassa, 3 grammes.
 White sugar, 10 grammes.
 Aqua, 100 grammes.
 Cochineal (to color), 1 gramme.
 M. S.: Teaspoonful every hour or two hours;

or else use

R Yellow sulphate of antimony, 0.50 ctgr.
 Mucilage (acacia), 20 grammes.
 Distilled water, 50 grammes.
 Syr. (simple), 20 grammes.
 M.: Teaspoonful every hour.

Spray may be used simply to thin the secretion.

The capital symptom is the cough, and we must act on the spasm by antispasmodics or anæsthetics, and the choice is immense, but habit has only kept a few drugs. In Germany and Austria they mostly resort to morphine, using its hydrochlorate in enema (of course with great precaution), but while not entirely giving up the use of opium in France. Here there is a marked preference for belladonna and bromides adding chloral in severe cases. These can be given together as Dr. Thomas, of Geneva, recommends :

R Bromide of potassium, 2 to 3 grammes.
Syr. belladonnæ, 30 grammes.
Aqua, 120 grammes.
M. S.: Teaspoonful three or four times a day.

A few drops of ess. thym. may be added to this prescription. Tincture of drosera is used by M. Sevestre with good results. As to antipyrine, the opinion is much divided. Dr. D'Espine will have none of it, thinks it weakens the constitution and is apt to produce pulmonary complications. The late Prof. Sergi and M. Boicesco (of Bucharest) uses this :

R Resorcin } aa 1 gramme.
Antipyrine }
Syr. of pine tree, 30 grammes.
Solution of gum, 100 grammes.

M.: Three to four tablespoonfuls per day and increase gradually.

It is true that we have a good drug for the nervous element in antipyrine, but we must not forget that it closes the kidneys, and if there is fever it will be wise not to use it. Brushing the throat with solutions of cocaine in $\frac{1}{20}$ to $\frac{1}{30}$ solution has its partisans. Prof. Hirschsprung is in favor of musk in infants for the cough.

The newer drugs, such as *bromoform* one to five drops in alcohol three times a day; *naphthaline* 15 to 20 grammes slowly volatilized in a crockery dish, the *essence of cypress leaves* which is soaked in the child's clothes, and benzine, with other things, are proposed with more or less in their favor.

All physicians recommend change of air and a stay in the country, but not during the fever, and with great care not to take cold. Escherich says that the air must be constantly renewed above all at night. In this order of ideas we must mention the baths of compressed air which are much used nowadays, but they cannot be given everywhere as they are difficult to get made, except in the large cities where establishments are to be found that

make a speciality of producing compressed air. So that we can sum up the present state of treatment of whooping-cough by saying that it is only the *ca. arrhal element*, and *above all the spasmodic one* that can be treated to advantage, until some better method or specific is found.

The following is the usual prescription for *tape-worm* in children used in France. Care must be taken in using it not to let salted foods be given at the same time for fear of mercurial poisoning:

R Ess. oil of filix mas. O.50 to O.80.
Calomel, O.20 to 40.
Water, } aa 10 grammes.
Pulv. sugar, }
Gelatine, q. s.

M.: All to be taken in three or four doses in the morning, before food, and after milk diet for the day before.

While on the subject of *tænia* we should mention that Laborde found that the new salts of strontium that are now being so much used in medicine, would kill worms. He gives it as follows:

R Strontium lactate, 20 grammes.
Aqua. destill. 120 grammes.
Glycerine, q. s.

M. S.: Two tablespoonsful a day, in the morning, for five days.

This is enough as a rule to be sure that the worm has been expelled.

General treatment for scrofula.—M. Baumel gives the following:

1st. Every day a dose of iodide of potassium, from 50 to 75 centigrammes. 2d. Prescribe this emulsion (which is about the same as that called Scott's):

R Cod-liver oil, 15 grammes.
Hypophosphite of soda, O.15.
Hypophosphite of lime, O.30.
Glycerine, gum and flavor, 15 grammes.
M. S.: Three teaspoonfuls per day.

Treatment of infantile paralysis.—(According to Dr. J. Simon.) At first external methods are used, slight revulsion over the spinal cord about the origin of the roots of the nerves, with dry cups or application of croton oil, mixed with some menstruum; or mustard leaves rather than cauterizing points, and the other more painful methods of vesication. Next give stimulating baths (in bed), using vapors, etc. Thirdly, sedation of the nervous system by chloral, aconite, or conium. In the second week combine electricity with tonics, as follows: Galvanization by weak continuous currents (2 to 4 milliam-

pères). Apply the positive pole by slipping it on the shoulder, and put the negative pole in a basin of water slightly salted, in which the hand is put, use this for eight to ten minutes, and notice that the positive pole does not blister the shoulder. If it gets too red reduce the strength of the battery. Later use the faradic current as a change, but with weaker current. Slight massage and friction may be made also, and give the following :

R Tincture nux vomica, 1 gramme.
 Tincture colombo, }
 Tincture cascarrillæ, } aa 4 grammes.
 M. S.: Give eight or ten drops as a dose.

After eight or ten days commence an arsenical treatment by a half to one milligramme of sodii arsenias.

During convalescence use sulphur baths or salt water baths, or sea baths, for three minutes at a time only.

The French medical treatment of rickets.—The utmost importance is given to the hygienic treatment first, and if the child cannot be sent to one of the special hospitals on the sea-coast where it can be exposed to sea air constantly, it is given warm sea baths for three or four minutes duration, or salt baths with six to eight pounds of seasalt in each bath. As to the regimen, from four to five meals a day are given at intervals of three hours consisting of rich phosphated foods with alkaline and lime salts, milk, eggs, cream, soups with pastes (Italian), smashed peas and other vegetables, and very little meat.

The drug treatment is as follows :

Phosphates.—Powders are preferred to solutions. The hydrochlor. or the aceto-phosphates, or what is called *milk phosphates*.

Cod-liver oil.—Commence by teaspoonful and increase up to five or six tablespoonsful per day. In summer time this can be used:

R Fresh butter, 500 grammes.
 Potass. iodid., O.25.
 Potass. bromid., 1 gramme.
 Sodium chloride, 8 grammes.
 Phosphorus, O. gr. O.i.
 M. S.: Dose 100 grammes a day, spread on bread.

This is called Trousseau's butter.

Dr. Comby prescribes this :

R Cod-liver oil, 1000 grammes.
 Phosphorus, O. gr. O.i.
 M. S.: Dose, teaspoonful.

He says that there is no danger with this phosphorized oil *but caution must be used*.

Kassowitz gives this formula which is well known and much used:

R Phosphorus, O. gr. O.i.
 Lipanine, 30 grammes.
 Pulv. sugar, { a a 15 grammes.
 Pulv. gum, {
 Aqua destill., 10 grammes.
 M. S.: Teaspoonful per day.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Gerhard, A. S.: Treatment of Diphtheria. (*Times and Register*, 1891, xxiii., 453.)

My treatment of diphtheria is based upon the assumption—in my opinion a demonstrated fact—that the disease is primarily of *local origin*, brought about by infection. Of all the antiseptics, according to my more recent experience, the peroxide of hydrogen is the best and most satisfactory. The treatment may be summed up as follows: 1. Isolation of the patient in a well lighted and ventilated room, kept at a temperature of about 65° F. The air to be kept “disinfected” by chlorinated lime, carbolic acid or sulphur. 2. Plenty of nourishing food. 3. The faithful local use of peroxide of hydrogen, and internally this mixture:

R Potas. chloratis, 3.00
 Acidi hydrochlorici, 2.00
 Tinct. ferri chloridi, 5.00
 Syr. sarsap. comp., 15.00
 Aq. destill., 40.00
 M. Sig.: Teaspoonful every two hours.

4. Plenty of rags for cleansing and wiping, which must be burned as fast as soiled. After the case is ended, the bed-ticking, sheets, etc., must be subjected to prolonged boiling and thorough washing with carbolated soap, while the contents of the mattress and pillows must be burned. The room must be thoroughly ventilated, scrubbed and scoured, given access to the sunlight, and fumigated with sulphurous acid gas.

Woodbury, Frank: Treatment of Diphtheria. (*Times and Register*, 1891, xxiii., 454.)

Recognizing the fact that diphtheria is a form of septicæmia or toxæmia, depending upon the pernicious activity

of certain micro-organisms, the treatment should have three main objects in view: 1. The prevention of further introduction of the poison from without. 2. The arrest of development of centres of auto-infection, especially in the upper air-passages. 3. The administration of agents which, after absorption, will act as antidotes to the toxic products of the local disease centres, and overcome their depressing effects upon the heart and nervous system.

These requirements are met by putting the patient in a well ventilated, sunny room with good sanitary surroundings; by giving plenty of alcohol and good food; by the careful disinfection of the throat and nose with various applications, the best of which is a solution of peroxide of hydrogen diluted with one or two volumes of pure water; and by the internal use of certain drugs, as calomel, bichloride of mercury, the chlorine solution of Watson, etc. During convalescence, give quinine and strychnine, and food at short intervals in an easily assimilable form.

Bigelow, J. M.: Local Treatment of Diphtheria. (*Albany Med. Annals*, 1891, xii., 270.)

1. The prevention of local infection-prophylaxis: The part exposed to infection should be sprayed with a solution of peroxide of hydrogen (1 to 3) and within five minutes after apply a solution of bichloride of mercury (1 to 2000). Others advocate sulphur lozenges, or a spray of a weak solution of chlorate of potassium.

2. The destruction and removal of false membrane and antiseptis: Among the many remedies is steam medicated with bromine, iodine or chlorine; the fauces may be sprayed with a solution of chlorate of potassium (1 to 2 per cent.), or lime-water, or lime-water and glycerine, or a solution of lactic acid (40 grs. to an ounce). The following may be applied with a swab, boroglyceride, papoid, trypsin, liquor potassæ (1 to 4), hydrate of chloral (1 to 2), liquor sodæ chlorate (1 to 2½), or a full strength 15 volume solution of peroxide of hydrogen. This latter remedy is especially useful in nasal diphtheria. Other local applications recommended are a powder of one part menthol to 10 or 20 of white sugar; equal parts of tobacco juice and alcohol; boric acid solutions; salicylic acid solutions; aromatic waters; weak sublimate solutions (1 to 10000 or 1 to 15000); solutions of mercuric cyanide (1 to 8000 or 1 to 10000); thymol (1 to 500 parts alcohol, 20 per cent.); permanganate of potash solutions; 10 per cent. solution of resorcin in glycerine; inhalations of car-

bolic acid; bichromate of potash in *carbonic acid* water ($\frac{1}{2}$ gram to 1 pint); powdered iodoform; sulphate of zinc (3 grs. to an ounce); sulphur; quinine locally in spray or powder; ice to be taken in the mouth and applied externally to the neck; eucalyptus, and turpentine. Ammonium chloride either locally, or inhaled by burning over a lamp. It evaporates speedily into a dense white cloud, unirritating and very alleviating. Good results are claimed by applying the following varnish after drying the false membrane with blotting paper: Gum tolu, 1 part and sulph. ether 5 parts.

3. In regard to the destruction of the germ and its ptomaines, besides the many means already noticed, there is used the galvano-cautery; cauterization with nitrate of silver, carbolic acid, or corrosive sublimate (1 to 50); hypodermic injections of two-tenths per cent. solution of aqua chlorini; inoculation of cases with cultures of the erysipelas microbes; the removal in the acute stage of enlarged and œdematous uvulæ; inhalation of oxygen, etc., etc.

Thursfield: Outbreaks of Diphtheria and Scarlatina Coincident with Febrile Eruptions in Cows. (*Brit. Med. Jour.*, London, 1892, Jan. 30, 228.)

Read before the Society of Medical Officers of Health. He said milch cows were subject to a number of eruptive and febrile affections of the udder variously described as garget, cow-pox, etc.; and it was by no means unusual to find these appearing concurrently with outbreaks of scarlatina or of diphtheria among the surrounding population, though very difficult to exclude an independent and purely human origin of the latter. In November last Dr. Thursfield's attention was called to an outbreak of diphtheria in a family consisting of father, mother and seven children, involving all but the man and three of the children, following a highly febrile disease, accompanied by a pustular eruption on the udders, of the three cows forming their stock-in-trade. The symptoms—general and local—were identical with those described by Dr. Klein as consequent upon experimental inoculation of cows with the virus of human diphtheria. The two members of the family who were first and simultaneously attacked on the ninth or tenth day after the appearance of the eruption in the cows, were the mother and the eldest boy, who were in the habit of milking them. The other four cases followed at intervals from the third to

the fifteenth days from these, evidently through infection from one to the other. The house was in an isolated position, its sanitary conditions fairly good. Two cats were also attacked with unmistakable feline diphtheria, one fatally. There was no diphtheria in the neighborhood nor any history of possible importation.

Rhea, L. J., (Cairo, Ia.): Diphtheria from Rags after Nine Years. (*Med. Brief*, St. Louis, 1892, xx., 43.)

Was called to see F. M., aged eight years, and found a fully developed case of diphtheria, followed in the course of ten days by five others. There were no cases in the neighborhood, but upon investigation it was found that the father three days previously had bought a sack of old rags from a neighbor, who, nine years before had taken them from a house where diphtheria prevailed, and of a very malignant type. The sack was opened by the children and some false hair was found, with which the children amused themselves. During this time, the rags had remained undisturbed in an old out-house.

Smith, W. A. De W., (New Westminster, B. C.): Antipyrin in Whooping-Cough. (*Med. News*, 1892, lx., 48.)

Ten cases were treated during the last three years, and although no harm came from its use, the effect in each case was negative. The cases ranged from one to twelve years of age, and were first seen in the early stage of the disease. The remedy was given after Sonnenberger's method, *i.e.*, a dose graduated according to the age of the child. In no case was the disease shortened in its course, nor was there any difference in the severity of the complaint when the remedy was stopped after having been administered for some days.

Dorning, John, (New York): Crying and Its Significance. (*Babyhood*, New York, 1892, viii., 46.)

Crying may be said to be due to one of three causes. First, actual pain, as in colic, inflammation of some part, or from injury, etc. Second, some unpleasant or distressing sensation, not of a painful nature, as hunger, thirst, fright, uncomfortable arrangement of clothing, etc. Third, temper.

Abrams, Albert, (San Francisco): A Fatal Case of Poisoning by Chlorate of Potash. (*Occidental Med. Times*, 1892, vi., 23.)

The patient was a boy, *æt.* three years, who swallowed the contents of a bottle containing about thirty three-

grain chlorate of potash lozenges. Three hours later he vomited for about fifteen minutes, and expelled about twelve or more lozenges. Six hours after this time, vomiting again occurred together with marked cyanosis and all the symptoms of collapse. On the following day the cyanosis persisted, there were abdominal pains, and two ounces of dark colored urine was passed, which was shown by the spectroscope and by Teichmann's test to consist of altered hæmoglobin. There was slight elevation of temperature (about 102° F. in rectum), which continued until the fourth day of the intoxication.

Up to the death of the patient, six days after, almost complete anuria existed, only five or six ounces of very turbid urine, containing about seven per cent. of albumen, being expelled during the entire period. It contained no casts or renal epithelium. On the sixth day symptoms of uræmia were first noticed, manifested by clonic spasms in the muscles of the face and extremities, amaurosis, emesis and diarrhœa.

Cyanosis had disappeared, to be succeeded by icteric coloration. The stools were of a dark red color, due to bilirubin and not blood. The spleen was slightly enlarged and petechiæ were present on the abdomen. The heart sounds were clear, although occasionally arrhythmic. On the eighth day slight œdema of the eyelids was observed, on the ninth day pulmonary œdema developed and on the tenth the child died.

The treatment pursued was as follows: inhalation of oxygen until the cyanosis disappeared; strophanthus and digitalis as cardiac tonics and to promote diuresis; cold water affusions to the chest and back of the patient while immersed in warm water. The diet consisted of peptonized milk with brandy. Large quantities of water were drunk, and diuresis was promoted by a fresh infusion of digitalis and acetate of potash. Hot and alcohol baths, and enemata of glycerine were also administered.

Baginsky: Therapeutics of Diphtheria. (*Archiv. f. Kinderheilk.*, 1891, xiv., 1.)

What we demand of therapy is: First, a means which shall destroy the diphtheria bacillus at the seat of its first activity while it leaves unharmed the affected region and the general organism.

Second, a means which prevents the spread of the pseudo-membrane or which shall make possible its quick and complete removal to avoid the threatening death from asphyxia.

Third, a means which may render harmless the poison generated by the diphtheria bacillus and carried by the blood, the lymph and perhaps also by the nerves.

That one means should ever fulfill all these indications is hardly to be hoped. To meet the third indication the studies up to the present time have resulted in no useful application. While employing the well-known and the newly recommended remedies to meet the local processes in the pharynx the need of good nourishment and means for strengthening the heart's action were always kept in mind. As for the second indication, when the extension of the diphtheritic processes to the larynx were leading to stenosis tracheotomy was employed as early as possible. The measures used for local applications may be best divided into the antiseptic and those employed as solvents for the membrane.

For the former, of all employed, the solutions of bichloride of mercury proved the best. It was used in the strength of 1-3000 for irrigation and 1-500 for local application. Next to this was the most unpleasant tasting alcoholic carbolic acid solution, three per cent. For the solvent measures lime-water and papayotin were used and in certain cases could be recommended. As a safe means to prevent the extension of the diphtheritic processes to the larynx they were not successful. In connection with the local applications the ice-bladder externally and the internal use of ice was employed throughout until the inflammatory infiltration of the mucous membrane of the pharynx disappeared.

Bokai : Abnormally Short Incubation Period of Scarlet Fever. (*Archiv. f. Kinderh.*, 1891, xiv., 64.)

Two cases reported in both of which following tracheotomy for diphtheria the incubation period of the scarlet fever was less than twenty-four hours.

Weber : Experiments in the Feeding of Young Animals with Milk. (*Journ. de Med. de Paris*, 1892, iv., 86.)

The experiments were made with young calves. Six were taken, the conditions of age, weight and size about the same, of these two were put upon milk from which the cream had been removed ; two upon sterilized milk and two upon the fresh milk as drawn from the cow but given from pails and not direct from the udder in order that the amount taken should be accurately known. The experiment lasted one month and six days. At the end

of the time the animals were in such good condition that it was not possible to find differences between them or to say which had been nourished in the one way or the other. Growth had been in all in about the same proportions. Weights had been carefully taken every five days. The gain in all the animals was approximately the same (tables are given). The animals upon the fresh milk, however, began by taking four quarts and ended by taking thirteen, while those upon the skimmed milk began with eight and ended with sixteen; those upon the sterilized milk began with seven and ended with sixteen. This would seem to show that the milk fresh from the gland had superior nutritive properties to either of the prepared milks since the quantity necessary to obtain the same results was less.

Dignat: On the Declaration of Epidemic Diseases. (*Journ. de Med. de Paris*, 1892, iv., 68.)

The proposition that such declaration should be made obligatory for parents or others than the physician himself is regarded as illusory. To guard the privacy of homes and the liberty of the individual as well as to preserve professional confidences the epidemic diseases need be considered in different classes and distinctions made between the conditions of private dwellings and hotels, schools and great industrial establishments and so on.

Laborde: Treatment of Tænia by the Salts of Strontium. (*Journ. de Méd. de Paris*, 1892, iv., 181.)

In the course of experiments with the salts of strontium the author noticed that dogs which took the drug were relieved of their tæniæ. Since the remedy has been employed successfully in a very large number of cases. The formula recommended is:

Lactate of strontium	20 gm.
Distilled water	120 gm.
Glycerine	q. s.
Two tablespoonfuls each morning for five days.	

Dubousquet: Treatment of Whooping-Cough by Vaccination. (*Journ. de Med. de Paris*, 1892, iv., 153.)

A report of three cases in which great improvement followed re-vaccination.

II.—MEDICINE.

Starr, M. Allen, (New York): *The Cerebral Atrophies of Childhood.* (*Med. Rec.*, N. Y., 1892, xli., 85.)

Conclusions: 1. Hemiplegia, sensory defects and imbecility occurring with or without epilepsy in children are chronic diseases incurable by medical treatment. Any means which may be legitimately used to save the individual from a life of invalidism is to be employed. 2. The pathological conditions producing these symptoms may be either gross defects and atrophies of the brain or an arrest of development in the cerebral cells without any change which is apparent to the naked eye. 3. It is at present impossible to determine absolutely the pathological condition present in any given case without an exploratory operation. 4. Such operations are not without danger, but if caution is used in opening the dura, and if the operation is made as short as possible, the dangers are avoided. 5. When manifest atrophies are present the operation will not produce any result. When the condition is one of arrested development of cerebral tissue it may prove of service. When clots, cysts or tumors are found and removed the chance of recovery is increased. When the skull is markedly microcephalic from early union of the sutures the increased space given to the brain by the operation appears to stimulate its growth and development. 6. Epileptic attacks are frequently reduced in frequency and modified in character by craniotomy. When the opening of the skull remains covered only by the soft tissues it appears to act as a safety-valve, allowing changes in the intra-cranial contents to occur without producing pressure upon the brain. 7. While hemiplegia, aphasia, athetosis and sensory defects have been relieved by operation, it is as yet impossible to predict to what extent imbecility may be relieved. 8. Reports of cases should be made in full and not within six months of the time of operation, as conclusions cannot be reliable unless reached from long observation.

Felsenthal: *Three Cases of Cerebral Paralysis in Children.* (*Archiv. f. Kinderh.*, 1891, xiv., 16.)

In these three cases were noticed, twice pronounced initial stage. In one the disease followed measles. In one case there was marked *attitude paralytique*; in two of the cases athetotic movements of the hand. In two cases diminution of the intelligence, and in one epilepsy followed the cerebral paralysis.

Felsenthal: Affection of the Submaxillary Glands by the Material of the Infectious Parotiditis. (*Archiv. f. Kinderh.*, 1891, xiv., 13.)

Both submaxillary glands showed a considerable swelling while the parotids were very slightly swollen. The diagnosis was proven by the fact that an epidemic of parotiditis was raging in the neighborhood of the hospital.

Felsenthal: A Case of Congenital Struma. (*Archiv. f. Kinderh.*, 1891, xiv., 13.)

Well-developed infant, female, twenty-five days old. No sign of congenital rachitis. Voice hoarse, inspiration protracted. A tumor on either side of the larynx, on the right side, about the size of a walnut, round, soft to the feel like a soft cyst; on the left side the same but smaller. Directly under the thyroid cartilage a hard substance connecting the two tumors. Circumference of the neck 21 cm.; of the head 37 cm.; of the thorax with deep inspiration 33.5 cm.; by deep expiration 32 cm.

Heart sounds clear. No abnormal signs of importance in the thorax. The mother has a large goitre. Circumference of the neck 40 cm.

Felsenthal: A Case of Subcutaneous Emphysema. (*Archiv. f. Kinderh.*, 1891, xiv., 12.)

A boy of two-and-a-half years. Six weeks before had had measles since which time he had severe cough. No signs of tuberculosis, no whooping-cough.

Felsenthal: A Case of Congenital Microglossia. (*Archiv. f. Kinderh.*, 1891, xiv., 9.)

Female infant, nineteen months old. In its bodily and mental development it appeared about six months of age. Was of parents apparently healthy and had been fairly well nourished. Fontanelle open, transverse measurement 2.3 cm. Sagittal 3 cm. Occiput soft. Growth of hair deficient. Circumference of head 42 cm. Large veins upon the cranium. Cranium altogether asymmetrical. The right side of the occiput much more prominent than the left. The root of the nose deeply sunken. The tongue thick, very broad, extends over the jaw, and is held always protruded, the mother states. There is a general muscular hypertrophy with the congenital microglossia. According to Bruck, who reported two similar cases, the occurrence of the two conditions together is not accidental, but that the microglossia is a part of the general muscular hypertrophy.

The backwardness of development, the deeply sunken root of the nose, depending upon a premature synostosis of the sphenoid and the body of the occipital bones, with other symptoms would allow the case to be classed as one of cretinism. The child was also rachitic as the open fontanelle and the softness of the occiput showed.

Felsenthal: Three Cases of Tetanus. (*Archiv. f. Kinderh.*, 1891, xiv., 7.)

In two of the cases the children were otherwise quite healthy; no digestive disturbances; a very slight degree of rachitis in one of them. In these the disease was idiopathic or primary tetanus. In the third case there was severe diarrhœa. This case should not be considered as one of idiopathic or primary tetanus, but rather one of those in which the products of metamorphosis in the intestine cause a toxic irritation of muscle nerves. In all three cases there were:

1st. Tonic intermitting spasms of the extremities with full consciousness. They were flexor spasms. In one the spasms were of longer duration.

2d. Trousseau's phenomenon, whereby the spasms could be produced or increased.

3d. The mechanical excitability of the nerves and muscles were increased; this could be beautifully shown in the region supplied by the facial.

In one case there were laryngo-spastic attacks. This child gave evidences of a slight rachitis. The laryngo-spasm might be considered as a symptom of the rachitis, occurring only as a coincidence with the tetanus. Escherisch believes in the closer connection between the two and holds that the laryngo-spastic attacks are of the same significance as the tonic contractures in the muscles of the extremities. Opposed to this theory is the fact that tetanus with laryngo-spasm is very seldom observed, while laryngo-spasm without any evidences of tetanus is very often seen.

Stuart, G. A.: Bismuth Subnitrate as a Dressing for the Umbilical Cord. (*Med. News*, 1891, lix., 713.)

The mode of application is as follows: Cut a piece of lint sufficiently large to fold over and prevent the bismuth from being dispersed. Through this a hole is made small enough to fit tightly about the cord and prevent dispersion at that point. The abdomen about the cord is dusted with the bismuth, the cord is passed through the hole in the lint, and the lint pushed well down upon the abdo-

men. Bismuth enough to completely bury the cord is applied, the lint is folded over smoothly, and the binder applied. The advantages of this dressing are: (1) Convenience. (2) Cleanliness. (3) Safety. (4) The cord drops off sooner; and (5) leaves a better and firmer cicatrix than by any other method.

Duhring, Louis A., (Philadelphia): *Experience in the Treatment of Chronic Ring-Worm in An Institution.* (*Am. Journ. Med. Science*, Phila., 1892, ciii. 109.)

There were forty-eight cases in the institution, of which thirty-two might properly be designated as "bad cases," all of these showing the disease extensively developed and in a chronic state.

The list of remedies used is a long one and includes carbolic acid; carbolic acid, nitrate of mercury and sulphur; tar; tar and carbolic acid; tar and nitrate of mercury; iodine; iodine and tar; iodine and carbolic acid; oleate of copper; the mercurials; croton oil, and sulphur.

The most active and potent parasiticide employed, however, was chrysarobin. The strength varied from fifteen grains to two drachms to the ounce of ointment, the weaker ointment, however, having been seldom employed. From experience with the drug in these cases—which were all chronic and had long been subjected to strong remedies—there would seem to be not much danger from its employment, if applied under the supervision of the physician, and if due care be exercised in avoiding the face, in making the applications sparingly, and in gradually increasing the strength. It is a remedy always to be handled with caution.

It proved the most valuable parasiticide in the list. In the form of ointment it possessed power to penetrate the follicles, and to destroy the life of the fungus, and in this latter power lies its great worth. It should invariably be applied in the smallest possible quantity and be well rubbed in with a bit of cloth or mop. Used with caution, the staining of the skin of both patient and nurse may be reduced to a minimum. It is the most potent remedy at our command, and it is not only a valuable but a comparatively safe remedy.

Manley, T. H., (New York): *A Few Observations on Diseases Which Implicate the Hip, Knee and Ankle-Joints During Childhood.* (*Med. and Surg. Rep.*, Phila., 1892, lxvi., 326.)

It may be said in a general way that these maladies are functional and organic, intra- and extra-articular; are

self-limited. In their milder forms requiring little, if any, mechanical fixation of the affected joint. The premature adoption of any sort of orthopædic appliance may result in serious ultimate consequences to the utility and strength of a limb.

Mechanical apparatuses when applied at the right time and skilfully adjusted are of infinite value; but otherwise the patient's chances are much better without them. There is yet good ground for very strong and emphatic objection against resection of the knee-joint. In recent extra-articular ankylosis, in order to derive the most prompt and permanent benefit from the liberation of the adhesions, the force should be cautiously but suddenly applied without an anæsthetic.

The term "hip-joint disease" should be rejected from surgical nomenclature as a term too vague and misleading. Finally, in each and all of these pathological conditions at the hip, whatever be the extent, we should not lose sight of the cardinal fact that they all arise either from unsanitary surroundings, improper dieting, inheritance or malnutrition. Antiseptics, except for purposes of purification of a sore or a wound in a joint, though they promised much, have been disappointing and serve scarcely any purpose in the treatment of affections here considered.

Bryan, J. Roberts, (Philadelphia): Determination of the Sex of the Fœtus. (*Annals Gynec. and Pæd.*, Phila., 1892, v., 307.)

He gives six cases of pregnancy which seems to confirm the theory of Dr. Wilson, of England, as to the determination of the sex of the fœtus. It is based on a theory concerning the nutrition of the ovum, to the effect that when the ovum is first extended from the ovary it is much stronger, and its nutritional power is greater than after it has been several days on its way down through tubes, uterus, etc., to be cast away if not fertilized; and if fertilized, while strong, the resulting fœtus will be male; if later, when the ovum has become weakened, female. On the further supposition that ovulation, although not dependent upon menstruation, is *apt* to occur at that time, hence, if impregnation occur before menstruation, the result will be a male child; if afterward, a female.

Kelynack: Fractured Skull in an Infant. (*Brit. Med. Journ.*, 1892, Feb. 27, 441.)

Shown before the Manchester Pathological Society the skull cap and brain of an infant, aged five months, where

extensive fracture of the vault resulted from a fall. At the necropsy there was no evidence of external injury. A fracture extended from a little in front and above the right parietal eminence backwards across the lambdoid suture into the occipital bone. There was no laceration of underlying dura mater, but distinct subdural clot on the opposite side. The frontal and parietal lobes were covered by an effusion of puriform lymph. No distinct cerebral symptoms occurred at the time of the accident, but convulsive attacks appeared on the third day; temperature rose to 106.2° ; the child became comatose and died four days after the fall. The child was the subject of early rickets, but otherwise healthy.

Railton: Intracranial Tumor With Definite Loss of the Left Upper Quadrant of the Field of Vision. (*Brit. Med. Journ.*, London, 1892, Feb. 27, 442.)

The case was mentioned before the Clinical Society of Manchester, of a girl, aged eleven years, who during the past ten weeks had gradually developed symptoms pointing to a cerebral tumor—headache, vomiting, intense optic neuritis, etc. There was total loss of knee jerk on both sides, but she could walk with some slight unsteadiness, and there was no sensory or motor disturbance beyond paresis of the right sixth nerve. As there was some history of tuberculosis in the family, Dr. Railton submitted that the growth was probably tuberculosis, while, from the symptoms presented, he was of the opinion that the site of the tumor would be found in the right occipital lobe. The character of the hemianopsia was of the utmost interest and value as a localizing symptom.

Pirie, Geo. A.: A Case of Pseudo-Hypertrophic Muscular Paralysis in an Early Stage. (*Brit. Med. Journ.*, 1892, Feb. 20th, 384.)

The patient was a boy, *æt.* eight, who presented the characteristic features of pseudo-hypertrophic muscular paralysis. There is no history of the disease in the family. The father and mother are third cousins. He began to speak in his eighth year, and his intelligence has always been impaired. The erector spinæ is unusually enlarged, and when the boy stoops it stands out boldly and is hard and elastic to the touch. In spite of its size, however, its power is very small. Another feature in the case is the entire absence of any hereditary tendency. In other respects the case shows the characteristic signs of this disease in an early stage. The consanguinity of

the parents may have had some influence, but more probably the disease has been caused by exposure to cold and want of attention to the boy in infancy.

Prengrueber: Results from a Craniectomy. (*Journ. de Méd. de Paris*, 1892, iv., 182.)

The operation of craniectomy was performed upon a child of nine years, microcephalus with arrest of intellectual development. Immediately following the operation a beneficial effect from the point of view of the central functions could be noted. It is impossible to judge finally of this operation still too recent. All that can be said is that up to the present time the majority of those for whom craniectomy has been performed (still a small number) have been placed in more favorable conditions than if abandoned to themselves.

Breton: Treatment of Purulent Pleurisy in Children. (*Mal. de l'Enf.*, Paris, 1892, x., 69.)

A report of ten cases of purulent pleurisy with seven recoveries, three deaths. One of the deaths, however, should be attributed rather to diphtheria. It is to be noted that the pneumococcus was found in eight cases out of the ten. This microbe was oftenest found alone which favored singularly the chances of recovery. In two cases which terminated fatally there was tuberculosis. From this one may conclude that purulent pleurisy in the child almost always ends in recovery when properly treated with the condition that it is not accompanied by tuberculosis.

Kauffman, S. (Garden City, Mo.): The Diagnosis of Acute Bronchitis in Children. (*Med. Rec.*, Kansas City, 1892, ix., 41.)

To summarize, 1st. An inflammation of the bronchial mucous membrane never does extend to the parenchyma of the lung thereby causing hepatization. 2d. A pneumonitis does not extend to the bronchial mucous membrane, except from contiguity and thereby cause bronchitis. 3d. When bronchitis and pneumonitis are found in the same subject it is accidental and not as one disease. 4th. When in the course of a bronchitis there develops circumscribed areas of dulness in one or both lungs it is not a bronchopneumonia, but a bronchitis with atelectasis.

Railton, T. C.: Birth Palsy. (*Brit. Med. Journ.*, 1892, Feb. 27th, 441.)

Specimens were shown to the Manchester Pathological Society from a case of double spastic hemiplegia, an idiotic

boy aged three. There was a history of difficult labor, forceps and asphyxia. All four extremities showed "lead-pipe" contracture. The slightest touch produced universal rigidity. When fed, the muscles of the lower jaw were thrown into spasm. There was firm tremor of the hands when raised, and on yawning general clonus occurred. Knee jerks were exaggerated; superficial reflexes active. Death occurred from broncho-pneumonia. The necropsy revealed little alteration in the naked eye appearance of the brain. There was merely a slight depression most marked near the vertex, which ran parallel with and involved the pre-central fissure, the fissure of Rolando and the central convolutions in both hemispheres. The pia and arachnoid in these regions were thickened, opaque and adherent. A similar thickening of the pia was found over the temporo-sphenoidal region, and at the bases of the frontal convolutions, but no depression. The paracentral lobules were slightly depressed, and the pia was thickened and opaque. Microscopically, in the motor area there was a diminution in the number of the large ganglion cells and some increase in the neuroglia.

Ashworth, Percy: Acute Neurosis of the Tibiæ. (*Brit. Med. Journ.*, 1892, Feb. 27th, 441.)

The patient was a girl, aged thirteen, who was sent into hospital as a case of rheumatic fever. In a few days sub-periosteal abscesses developed in front of each tibia accompanied by symptoms of pyæmia. Free incisions and drainage were employed, but the right knee-joint became involved and spontaneous fractures occurred in the left tibia and right humerus. Death occurred about seven weeks after the onset. The tibiæ showed almost complete denudation of the periosteum from the upper third of the shaft, and on making a sagittal section of the right tibia two fractures developed, one about an inch below the upper epiphysis, the other three or four inches lower down, due to the fact that separation of the dead from the living bone was taking place here. The cartilages of the upper articular surface was almost completely destroyed. The left tibia showed a spontaneous fracture in much the same position as the upper fracture in the right tibia.

Moore, Norman: Congenital Malformation of Heart. (*Brit. Med. Journ.*, 1892, Feb. 6th, 274.)

The heart of a boy, æt. five months, who was watched from the age of three weeks was shown to the Pathological

Society of London. The aortic arch was somewhat larger than usual and perfectly developed. It arose from a left ventricle with very thin walls. Into this a mitral valve opened from a left auricle of normal size. The foramen ovale was widely open, and the right auricle was of double its natural capacity and thickness.

An opening through which an ordinary pin would just pass represented the tricuspid valve, and led into a right ventricle just capable of holding two pins' heads. From this a very minute pulmonary artery without valves issued. This nearly doubled in calibre as it came near the ductus arteriosus which was patent. The circulation was carried on by the single ventricle, the pulmonary artery being supplied through the ductus arteriosus from the aorta. The blood-current must have always been mixed. The child was deeply cyanosed, but had no clubbing of the fingers or toes. It was always very short of breath and never sucked well. The first and second heart sounds were audible, but no murmur was to be heard.

Ashby: Loeffler's Diphtheria Bacillus. (*Brit. Med. Journ.*, 1892, Feb. 6th, 276.)

He showed before the Manchester Pathological Society stained specimens and also pure test-tube cultivations; and said that there was a good prospect of the diagnosis being arrived at with certainty in doubtful cases without any great difficulty and with considerable rapidity. The most ready method was to detach a small piece of membrane and place it for five minutes in a two per cent. solution of boracic acid, then to draw the piece of membrane along the surface of sterilized blood serum in a test-tube, and maintain it at a temperature of 37° C. for 12 to 24 hours. At the end of this time if the bacilli were present, characteristic, small, white, rounded colonies were visible along the track of inoculation. The bacilli were stained with cabol fuchsine and examined with an oil immersion cruse. To obtain a pure cultivation a second or third preparation must be made. The bacilli were thicker than the tubercle-bacilli, mostly joined together in twos or more, and the ends were darker than the central portions.

III.—SURGERY.

Clegg, N. T. (Liverpool): Tracheotomy in an Infant Four Days Old. (*British Med. Journ.*, 1892, Jan. 9, 68.)

The child was four days old and apparently almost moribund. The frænum was long, and the large swollen tongue filled and obstructed the mouth. Beneath the tongue there was a large nævoid mass which explained the appearance and position of the tongue. The tracheotomy was done to relieve the most urgent symptom—the dyspnœa, which it did effectually. The resonance over the back of both lungs was much impaired, the baby died early the following morning. We were allowed to examine only the neighborhood of the wound *post-mortem*. We found the opening in the trachea extended from below the cricoid cartilage nearly to the sternum and in the lower angle of the wound lay the innominate artery. The trachea was large enough to admit a No. 1 Durham's tube (the diameter of the outer tube of which is 7 mm.), but there was difficulty in getting so full sized a tube into it.

Askin, T. C. (Alderton, Suffolk): Case of Ileo-Cæcal Intussusception in a Male Infant Aged Nine Months. (*Lancet*, 1892, i., 85.)

He enjoyed perfect health until December 4, 1891, when he was suddenly seized with great pain, and when his bowels moved, soon after, the motion contained nothing but blood. The pain did not recur, but vomiting set in. On the sixth, the temperature was 98° in axilla, pulse 160, and abdomen not distended. In the right iliac fossa a tumor, doughy in consistence and freely movable, could be easily and distinctly felt. Permission to operate was refused.

The necropsy revealed an ileo-cæcal invagination, about four inches of the gut being involved. The intestine was intensely congested, and the invagination was reduced with difficulty. There was no evidence of general peritonitis.

Schaefer, W. L. (Ridgeville, O.): A Case of Acute Internal Strangulation of the Bowel in a Child Two Years of Age; Laparotomy; Death. (*Med. News*, Phila., 1892, lx., 47.)

The patient, a boy, æt. two years, was suddenly seized with colicky pains in the abdomen, and in the course of two hours vomiting set in, at first the contents of the stomach, afterward bile, which soon became stercoraceous.

The countenance assumed an anxious expression, the pulse was rapid and feeble, and the temperature was normal. There was great thirst. A movement of the bowels took place consisting principally of mucus and containing no blood. The abdomen was tympanitic, but no tumor could be detected. After the use of calomel, injection of warm water, of glycerine, of air by means of a pair of bellows and without relief, a laparotomy was done, the abdomen being opened in the median line. There was found a complete twist of the small intestine, about four inches above the ileo-cæcal valve. This was carefully untwisted, and although dark and deeply congested it was not gangrenous. The usual antiseptic precautions were observed. Reaction, however, failed to set in, and the patient gradually sank, and died two hours after the operation.

Thomson, John (Edinburgh): Case of Congenital Obliteration of the Small Intestine. (*Edinburgh Med. Journ.*, 1892, March, 840.)

Mrs. G's infant (male), two-and-a-half days old, was seen on November 12, 1890, on account of complete obstruction of the intestine and constant vomiting. No motion of any kind has come from the bowels. The skin is bright red, with a strong orange tint; conjunctivæ slightly yellow; and the lips, the vertex of the scalp, the palms and soles, and the neighborhood of the arms are all markedly cyanosed. On the tenth day, the child passed half a teaspoonful of dark green matter, the color of which was due to micrococci and not bile. The jaundice became more marked and emaciation became extreme. The child died at 7 A.M., November 20th, aged ten days and four hours.

The autopsy showed that the whole of the duodenum and a few inches of the jejunum was enormously dilated. Its lower extremity is an abruptly wounded end, perfectly closed, and there is a gap between it and the next portion of the bowel. The mesentery belonging to it also comes to an abrupt end, there being a deep fissure between it and that of the succeeding piece of the intestine. A short distance from this dilated portion of bowel is a small bit of gut, one-and-a-quarter inch in length and one-sixth inch in diameter. It is blind at both ends, and is fixed in the shape of a horseshoe by a little tongue-like flap of mesentery. From the point of this flap a small, rounded, fibrous band passes in among the neighboring

coils of intestine, and after encircling the mesenteric attachment of a large portion of the bowel, is fixed by a fan-shaped end into the middle of the upper surface of the mesentery of a coil of a jejunum. The intestine below this is contracted, and empty, except in one or two situations, where the lumen is occupied by small masses of green matter.

Taylor, P. R.: Intubation in Diphtheria. (*Journ. Am. Med. Assoc.*, 1892, xviii., 66.)

Four cases are reported, two of which recovered.

Richards, W. D., (Dayton, Ky.): Intubation of the Larynx. (*Lancet-Clinic*, 1892, xxviii., 6.)

He reports the details of five cases of diphtheritic croup treated by intubation of which four recovered. His previous experience in the treatment of this disease by inhalations, medications, tracheotomy, etc., was that every one died.

Redard: The Bed of Plaster in the Treatment of Pott's Disease. (*Gaz. Méd. de Paris*, 1892, xiii., 148.)

A description in detail of the manner and means of making the beds with illustrations. Among the advantages claimed are the ease with which the patient may be transported, placed in a pure air which permits the immobility and extension of the affected parts. The general condition of the patients immobilized in the plaster beds so far from being aggravated is generally rapidly ameliorated in a notable manner. Beside, the construction is very simple and of very low cost.

Abscesses of the Mammæ in the New-born. (*Soc. Méd. des Hôpitaux, Mal. de l'Enf.*, Paris, 1892, x., 184.)

The new-born present almost always, in different degrees, an engorgement of the mammæ in the first few days following the birth. This engorgement is physiological and is accompanied by a milky secretion which lasts two to three weeks and disappears spontaneously. Analyses have established that this liquid is analogous to if not identical with mother's milk.

In some cases the engorgement ends in suppuration. This complication is a grave one as it may result fatally, or may end by causing a cicatricial retraction of the nipple which will in later life prevent nursing. The suppuration is often the result of unfortunate interference such

as compression or suction often practiced to empty the mamma. The treatment should be limited to the aseptic protection of the gland simply.

Greig, D. M.: Excision of the Condyle and Neck of the Inferior Maxilla for Osseous Ankylosis of the Right Temporo-Maxillary Articulation. (*Lancet*, London, 1891, ii., 1383.)

The patient, a male, aged twelve years, had an attack of scarlet fever in 1885. This was accompanied by right suppurative parotitis, which was followed by gradually increasing impairment of movement at the right temporo-maxillary articulation. In February, 1890, the case presented nothing noteworthy except in connection with this joint. A hard swelling extended from the articulation to the angle of the jaw and produced undue prominence of the right cheek. The skin near the angle of the jaw was marked by cicatrices. The incisor teeth were directed forwards, leaving a space, through which the patient was fed. It was impossible, even under chloroform to separate the jaws, and therefore the condyle and neck of the inferior maxilla was excised. Twenty months after the operation he has perfectly useful, though one-sided masticatory movement, and is able to separate the jaws about one inch.

Gibney, V. P.: The Diagnosis and Treatment of Hip Joint Disease. (*Boston M. and S. Jour.*, 1891, cxxv., 613.)

Six cases are reported in detail and the following conclusions are drawn:

1. An early diagnosis can be made by any one who examines the case carefully, and who familiarizes himself with the functions of a sound joint.

2. The necessity of regarding a case as chronic and therefore requiring prolonged protection of the joint.

3. The comfort that any patient may derive from an apparatus that is made to fit.

4. The benign progress of a case thus protected.

5. The importance of maintaining parallelism and equality of the limbs at all times, and under all circumstances.

6. The advantages of out-of-door life, which can not be secured by bed treatment.

7. The necessity of excision of the hip when well-directed efforts at securing rest and protection to the joint have failed.

Szontagh: A Case of Double Empyema of the Left Pleural Cavity. (*Jahrb. f. Kinderheilk.* 1891, Oct., 111.)

The case is of the somewhat rare multiple suppurative pleuritic, in this instance double. The patient was a girl of six years. Removal of the pus, irrigation and drainage was not followed by improvement. The heart's impulse not only did not come back to its normal situation, but slowly was pushed farther to the right until the sixth day after the operation it was in the right mammillary line. A second operation was then undertaken in the fifth intercostal space between the left mammillary line and the sternum. Here the point of the knife needed to be introduced to the depth of 3 cms. before the encapsulated pus was reached. Steady improvement and a recovery followed the second operation.

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Original Communications.

STARVATION NEUROSES.

BY W. S. CHRISTOPHER, M.D.,

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AMONG the most important of the functions of the pediatrician is the study of the diseases incident to development.

All diseases of infancy and childhood reflect, on the one hand, effects resulting from the initiatory immaturity of the various tissues and organs, and on the other hand, effects resulting from perversions of the complex processes of growth. The physician must accept as inevitable the normal immaturity at birth and confine his attention to the processes of growth. At least I shall not attempt to consider here what influence he may be able to exercise toward modifying this condition of immaturity at birth by previous attention to intra-uterine processes. After birth, aside from accidental and extraneous causes of disease, the development of the individual is influenced by two factors, heredity and nutrition. Some of the auto-intoxications cannot be classed, with propriety, as either accidental or extraneous causes of disease and so, perhaps, should be considered as a third factor influencing development. The hereditary potentialities acquired during intra-uterine life must ever remain with the individual; they cannot be eradicated, but only increased or diminished to a greater or less degree by environment. There re-

mains, then, the matter of nutrition as the most profitable feature for the pediatrician to study in connection with the processes of development.

It is, perhaps, supererogation to attempt to show that the "meat makes the man," but I beg to recall to you the old German proverb, "Der mensch ist was er isst," to show that the idea that the individual is strongly influenced by the kind and quality of the food which he eats is deeply rooted in general belief, and, therefore, probably contains at least a grain of truth. It may not be improper to refer to the words of Cassius:

"Now in the name of all the Gods at once,
Upon what meat doth this our Cæsar feed,
That he is grown so great?"

Owing to the peculiar circumstances of its growth the Turkish tobacco is the best in the world; the celery of Kalamazoo is unequaled for the excellence of its flavor; the tea plant cannot draw its delicate flavors from the soil of our own country. To advance to instances in animal life: the canvas-back duck does not possess the qualities which tickle the palate of the connoisseur until after it has fed upon the celery along the shores of the Chesapeake Bay. We can hardly conceive of a palate so crude that it cannot distinguish between the flesh of the corn-fed and of the slop-fed hog, yet the histologist does not exist who can distinguish between the tissues of these animals, and the chemists are as yet unable to tell us the secret of the difference between them.

If such slight differences in food supply can produce such striking results, what results may we not expect to find when the necessities of complete nutrition, as determined by our present relatively crude methods of chemical analysis, are grossly violated? It is surprising to see how often the food supply of infants is markedly deficient in one or the other of the fundamental kinds of food material. But it certainly is not surprising, when such deficiencies do occur, that numerous evidences of the resulting innutrition are noticed.

A house is to be built of stone and wood and metal. If these terms are translated to mean granite, oak and steel, a noble structure will be made; but if they are taken to mean soapstone, pine and zinc, a very sorry work will follow. If one element is left out entirely or supplied in niggardly quantity, the result must necessarily be even more defective.

The child is to be built up on proteids, carbohydrates and fats. If, now, these substances, as found in healthy human milk, be taken for this purpose, the best possible result will be attained, but if substitutes for them must be used then the result will be bad in proportion to the deviation from the normal, and if one or the other of these several classes be entirely omitted, or supplied in insufficient quantity, the result is the worst that can be had. Many of the evidences of innutrition produced by deficiencies in food supply are manifested as neuroses.

Clouston, in his recent very valuable work on "The Neuroses of Development," has pointed out in a masterly way the influence of heredity in the production of such neuroses, but so far as I can find from an examination of his work he has not laid stress upon the influence of incomplete food supplies upon the development of the several organs and tissues, and their consequent influence upon the development of neuroses.

Rickets is a disease of incomplete nutrition, and, as Cheadle* has already pointed out, is produced by long-continued deficiency in the supply of either proteids or fats. The influence of other factors, such as heredity, congenital syphilis, the indefinite bad hygienic surroundings, is ably discussed by Cheadle, and they are shown not to be constant factors. We are not concerned at present with a discussion of the general ætiology of rickets, and I may dismiss this part of the subject with the statement that I thoroughly believe that the most important and, perhaps, the only necessary factor in the causation of rickets is a long-continued deficiency of proteids, or fats, or both, in the food supply. I am unable to speak pos-

*Artificial Feeding and Food Disorders of Infants. London, 1889.

itively, however, of the part played by a deficiency of the supply of fresh air, which must certainly be regarded, in some respects at least, as a food.

The earliest manifestation of rickets is sweating, particularly about the head, and more particularly about the back of the head. Restlessness at night soon makes its appearance and with it a disinclination to remain covered. Often before any bony changes become apparent various convulsive manifestations appear, especially laryngismus stridulus and general convulsions. When the disease is well established its ravages are seen to be widespread. Not only are the well-known bone changes present, but the muscles are flabby, the ligaments relaxed and lymphatics, liver and spleen frequently enlarged. There is anæmia, and dentition is delayed, and hydrocephalus is not infrequently present. Certain lung changes, usually mechanically secondary to the chest deformities, are often seen, and there is a marked tendency to so-called catarrhs of mucous membranes, especially bronchitis and diarrhœa. Some of these symptoms are evidently neuroses and it is with them that we are at present concerned.

The possible neuroses to which the organism is liable may be roughly classified as follows:

Neuroses relating to—

A. Psychic faculties.

B. Sensation.

I. Anæsthesia.

II. Hyperæsthesia.

III. Neuralgia.

C. Heat production.

I. Elevation of temperature.

II. Depression of temperature.

D. Muscular tissues.

I. Hypertrophy.

II. Atrophy.

III. Paralysis.

IV. Convulsions.

1. Skeletal muscles.

a. General convulsions.

- b.* Chorea.
 - c.* Tetany.
 - 2. Pharynx.
 - a.* Dyspnœa.
 - b.* Dysphagia.
 - 3. Œsophagus.
 - a.* Dysphagia.
 - 4. Stomach.
 - a.* Vomiting.
 - b.* Mericism.
 - 5. Intestines.
 - a.* Increased peristalsis.
 - b.* Decreased peristalsis.
 - 6. Larynx.
 - a.* Dyspnœa.
 - b.* Laryngismus stridulus.
 - c.* Chorea.
 - 7. Bronchi.
 - a.* Asthma.
 - 8. Bladder.
 - a.* Incontinence.
 - b.* Retention.
 - 9. Urethra.
 - a.* Spasmodic stricture.
 - 10. Uterus.
 - 11. Vagina.
 - a.* Vaginismus.
 - 12. Heart.
 - a.* Chorea.
 - b.* Disturbance of rate.
 - c.* Disturbance of rhythm.
- E. Secretory organs.
- I. Increase of secretion.
 - II. Decrease of secretion.
 - III. Modification of composition of secretion.
- F. Absorptive organs.
- G. Elaborative organs.
- H. Respiratory organs.
- I. Excretory organs.
 - J. Reproductive organs.

Of these various possible neuroses some, such as those of the elaborative organs, cannot be shown to exist at all in the present state of our physiological knowledge; others, again, as those of the genital organs, do not exist in childhood; while still others do occur, some occasionally, some very frequently.

Of the psychic neuroses perhaps the commonest is *pavus nocturnus*, night terrors. No doubt heredity is a potent factor in its production, but it occurs in illy-nourished children with great frequency.

Hyperæsthesia is shown to be a starvation neurosis by its occurrence in scurvy.

It is difficult, if not impossible, to show that variations of temperature are, at any time, simple neuroses, but I have noticed subnormal temperature in children suffering from evident innutrition.

Of all the starvation neuroses the commonest are muscular convulsions. Naturally enough any muscle, or any group of muscles, may be affected, and the manifestations may present all the varieties of convulsive movements to which muscles are liable.

Probably no child whose nutrition is perfect ever has general convulsions, except as the result of actual brain disease, or at the onset of some infectious process, where the convulsion takes the place of the initial chill of the adult. So far as I am aware the so-called reflex convulsions occur only in children whose nutrition is below par. In a rachitic child the slight irritation produced by a prorupting tooth may be sufficient to set in motion the mechanism which causes convulsions, just as in the same child it may be the determining cause of bronchitis. In the perfectly healthy child dentition can cause no such effects. Both these manifestations, the convulsions and the bronchitis, are consequently to be classed as starvation neuroses. In such children many other trivial conditions may start the convulsive mechanism.

I have had one case in which tetany occurred in a rachitic baby a little over one year old. There was, however, an obscure acute fever going on at the time, other

marked nervous symptoms were present, and the bowels were disordered, so that it was impossible to determine the particular factors which produced the tetany.

In older children chorea, whatever be its cause, is evidently connected with the developmental processes. Notwithstanding all the work which has been done upon the subject, the ætiology of chorea still remains obscure. We have all noticed the beneficial effects in chorea of absolute rest in bed and forced feeding. The possibility of its being a starvation neurosis should always be borne in mind and observations of choreics with reference to this feature are very desirable. Dysphagia as a neurosis in children is certainly uncommon, but I have at present under my care a rachitic infant which presents this symptom.

Vomiting and diarrhœa occur so frequently in infants from a wide variety of causes that it is very difficult to say when they are merely starvation neuroses. But in rickets diarrhœa often occurs, for which no adequate explanation can be found in the conditions present in the intestinal canal, and which appears to be an essential feature of the disease itself. Such diarrhœa recovers under the use of cod-liver oil, and it is probably not going too far to designate it as a starvation neurosis.

The connection of laryngismus stridulus with rickets has been shown time and again. It is a very common manifestation of this disease, and probably the most common of all muscular starvation neuroses. Even in older children affected with pharyngeal adenoids, and in whom laryngismus stridulus frequently occurs, there can usually be found some nutritional defect. I have once seen spasmodic asthma occur in a rachitic child.

The following case will illustrate another starvation neurosis:

Harry S., aged seven months, ever since birth has cried before passing his urine. The bladder is evacuated about once an hour and there is always tenesmus. Alkalies produced no change in the conditions, but slight relief followed the use of potassium bromide. He was then put

upon cod-liver oil, and in two weeks the urinary symptoms had entirely disappeared. Other symptoms of rickets were present, including absence of teeth, profuse sweating about the head at night and night terrors.

Is incontinence of urine in older children a starvation neurosis? Certainly no one can be wholly satisfied with the views of the pathogenesis of this affection now extant. They are evidently incomplete. And certainly no one can be satisfied with the results of the treatment now employed in this affection. Let me call your attention to a case which shows, at least, that incontinence of urine may be associated with incomplete nutrition:

Harry E., aged four-and-a-half years, has always had incontinence of urine which, for the first two-and-a-half years, was both nocturnal and diurnal, but for the past two years the incontinence has been diurnal only, except that he wets the bed probably once a month. His anal control is not perfect, although no actual incontinence occurs, but when it becomes necessary to evacuate the bowels he is compelled to hurry to avoid an accident. He is small and light in weight; the mucous membranes are pale; the teeth are sharp, but not notched; the palate is rather high. Bowels are regular but inclined to constipation. When a baby the syringe had to be used constantly to secure a passage. Movements very dark; odor very putrid. The stool is large and moulded, and is followed by softer fæces. Appetite not good. Drinks a great deal of water. Sleeps well; is quiet; does not snore. No eye, ear or nose trouble; no headaches; no profuse sweating. Weighed only six pounds at birth. First tooth appeared at nine months. Had much trouble during second summer with diarrhoea. There is no history of head sweating during infancy, but he was then restless at night and disliked to be covered. Was nursed at the breast for seven months, and was then put on condensed milk and one cow's milk, receiving also mashed potatoes and oatmeal, which latter material formed a large part of his diet. He was early taught a habit of chewing beef, swallowing the juice and rejecting the pulp. This habit he still has, and consequently gets very little meat. Fat also practically finds no place in his dietary. His principal food at present is potato, in addition to which he eats bread and crackers in small quanti-

ties and vegetables and fruits; apples and bananas he is very fond of, and eats them in large quantities.

The analysis of such a case, no doubt, is difficult, many factors being involved, but certain features of the case stand out prominently. He is badly nourished and his food, for at least four years, has been markedly deficient in proteids and fats. Can we associate his incontinence with these features? To bring this boy's degenerate tissues into a normal condition will require months of proper feeding, if, indeed, the abnormal tendencies with which they have been impressed already, can ever be wholly eradicated. The lesson to be drawn from such a case is the necessity of providing infants and young children with a diet which contains all the necessary elements for complete nutrition. The younger the child the more rapid are its processes of growth. Hence in infants the results of defective nutrition are quickly manifested, and the curative effects of food arranged to supply the nutritive deficiencies also become apparent very soon. In older children, with more stable tissues, a defective food supply is longer borne without apparent effect, and on the other hand the beneficial effects, of an antidotal diet become apparent, only after a prolonged use. The relatively simple diet of the infant makes it easy to discover the particular kind of food which is supplied in insufficient quantity and makes the supply of the deficiency comparatively easy. But in older children, with a more varied diet, the defect is less readily discovered and less readily supplied.

I have frequently throughout this paper used the term rickets, although not from choice, but from necessity. The term rickets, as at present employed, covers the results of a wide range of nutritional perversions, and I have no doubt but that, as our knowledge of these subjects become more accurate, we shall be able to separate several nutritional disorders from the group now covered by the name rickets. In another direction the term rickets is defective, inasmuch as it does not cover the nutritional

defects found in older children, and for which no better term now exists than malnutrition or innutrition.

It has not been my purpose in this paper to ignore or belittle the influence of heredity and of auto-intoxication in the production of perversions of growth, but rather to direct attention to the effects produced by deficient food supply, and particularly to some of the neuroses incident thereto, and for which neurotic manifestations I believe the term "starvation neuroses" to be peculiarly applicable.

EXPERIMENTS AS TO THE VALUE OF NASCENT OZONE IN CERTAIN FORMS OF DISEASES OF CHILDREN WITH DEMONSTRATION OF AN EFFICIENT GENERATOR.*

BY AUGUSTUS CAILLÉ, M.D.,

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AT the last meeting of the Congress for the study of Tuberculosis, Messrs. Labbé and Oudin reported their experience as to the value of inhalations of ozone in pulmonary tuberculosis.

After referring in detail to a former communication regarding the physiological action of ozone, its innocuousness after protracted inhalation and its assimilation by the system as shown by the increase of oxyhæmoglobin in the blood, the above-mentioned authors laid particular stress upon the value of ozone as a parasiticide and antiseptic of high order, inasmuch as many forms of living bacteria including the pure culture of the bacillus tuberculosis were destroyed when brought into contact with nascent ozone. As a result of their laboratory and bedside experiments, Labbé and Oudin claim a double action for ozone in tuberculous subjects.

1. Increased metabolism in consequence of the high oxidizing power of ozone.

* Read at the meeting of the Am. Pediatric Society, Boston, May 2, 1892.

2. Destruction of the tubercle-bacillus in the tissues in consequence of its oxidizing power, and extreme diffusibility and ability to reach directly and indirectly the foci of disease in the lung.

Our French colleagues came to this conclusion after a three years' study of the subject in thirty-eight cases of pulmonary tuberculosis.

Of these thirty-eight cases seven were in the first stage, twenty-three in the second stage, eight in the third stage of disease. Thirteen cases were reported to be cured. The improvement was noticeable as regards *appetite, strength, increased weight*, and increased *vital capacity*. The average increase in weight was three kgrms.; the average increase in vital capacity was for the first and second stages, five hundred cc. The patient in the first stage of disease lost all physical signs of a pathological process. Seven in the first stage and six in the second stage were cured. Sixteen in second and three in the third stage were improved. Six died.

At the instigation of Drs. Labbé and Oudin, Dr. Desnos, of the Charité, treated with ozone inhalations alone seven cases of pulmonary tuberculosis and eight cases of anæmia, and reports that four anæmic patients gained each four pounds in four weeks and three per cent. oxyhæmoglobin.

Dr. Collart* reports in November, 1891, five cases of pulmonary tuberculosis treated with ozone in which a rapid and marked increase of the body weight was observed by him.

In Germany investigations as regards ozone have been carried on by Dr. Sturm, of Rüdesheim, but the literature on the subject has not reached me in time for this meeting.

Through the courtesy of an European colleague a number of Labbé and Oudin's ozone generators were placed at my disposal for experimental purposes in November, 1891, and I was thus enabled to test the efficacy of this treatment in the following class of cases:

I. Pulmonary tuberculosis, first stage.

* *Traitement de la Tuberculose Pulmonaire par les Inhalations D'Ozone. Annales de la Soc. Med. Chirurg. de Liege, November, 1891.*

2. Extreme anæmia (chlorosis).
3. Pertussis.

Before reporting my results I shall endeavor to explain the make-up of the apparatus. A mild electric current from a zinc carbon cell or storage battery is sent into a Ruhmkorff or spark coil and from there enters the inhaler, which is a double cylinder of glass, the inner cylinder being closed and holding an aluminium plate *in vacuo*, and surrounded by an aluminium cone. The electrical discharge is not in the form of a spark but presents a diffuse electrical glow. The moment the current is closed ozone is formed and in such abundance as to be perceptible to taste and smell and readily detected by the starch-iodine test.

For determining the percentage of oxyhæmoglobin of the blood Henoque's apparatus (hæmato-spectroscope) was employed. The spirometric observations were made with Brown's spirometer graduated in cubic inches.

Personal observations.—The period of observation extended over five months, during which time I carefully investigated eleven cases. Three cases of tuberculosis in the first stage, in adults; three cases of chlorosis, in children; five cases of pertussis, and I report additionally two cases of pertussis treated at my request with ozone inhalations by Dr. W. G. Mangold, and eight cases of anæmia and chlorosis treated with ozone inhalations by Dr. Orelina, of New York City.

Altogether this report embraces twenty-two cases, and taking into consideration the fact that there were but four ozone generators at my disposal, and that in over one-half of the cases the apparatus was set up in the house of the patient in order to get the best possible results, the number of cases appears sufficiently large to permit us to formulate an opinion as to the therapeutic value of ozone inhalations in the class of cases under consideration.

The salient points in the cases treated with ozone inhalations are as follows :

CASE I.—*Bacillary Phthisis*. (First stage, apex of left lung involved).—M. G., æt. thirty-seven, weight 126 pounds,

vital capacity 120. Oxyhæmoglobin seven per cent. Inhaled for fifteen minutes, three times daily for four months, after which she had nine per cent. oxyhæmoglobin and her weight had increased six pounds. Appetite and general condition was very good, but there was no local improvement, although the vital capacity had increased ten cubic inches and the sputum contained numerous tubercle-bacilli as before treatment. No medicine was taken during this time.

CASE II.—*Tuberculosis of Apex of Left Lung*.—P. K., twenty-eight years old, 155 pounds. Oxyhæmoglobin eight per cent. Inhaled once daily for three months, after which it was found that he had gained ten pounds in weight and eighteen cubic inches in vital capacity, and two per cent. oxyhæmoglobin. There was no local improvement. Bacilli as before.

CASE III.—E. M., twenty-five years old. History of tuberculosis in family. Has had several pulmonary hæmorrhages, pain under left scapula where a dulness is found, and a friction sound with subcrepitant râles. Vital capacity 104. Oxyhæmoglobin ten per cent. Inhalations three times a day, fifteen minutes each time for ten weeks, after which time the oxyhæmoglobin had increased two-and-one-half per cent. Vital capacity 116. Appetite and general condition excellent, moderate increase in weight. No tubercle-bacilli were found before or after treatment, but the local lesion was manifest as before treatment.

CASE IV.—*Case of Chlorosis and Anæmia*.—E. V., eleven years old, extreme anæmia, cold skin, no appetite, daily headache, no marked improvement after iron or arsenic. Vital capacity 90. Oxyhæmoglobin seven per cent. Ozone inhalations twice daily for fifteen minutes for two weeks, followed by very great improvement. Eleven per cent. oxyhæmoglobin. Vital capacity 120. Warm skin, no headache, good appetite.

CASE V.—*Chlorosis*.—E. H., twenty-two years old. Oxyhæmoglobin eight per cent. General condition and treatment as in Case IV. After two weeks' inhalations ten per cent. oxyhæmoglobin and general condition very good.

CASE VI.—Severe anæmia since birth in a sickly looking and emaciated girl of eleven years. Five per cent.

oxyhæmoglobin. Skin and mucous membranes white, general condition bad. No improvement after a change of climate and ferrum, arsenic, phosphorus, etc. Ozone three times daily for ten weeks, after which a great change was noticeable. Good color, warm skin, good appetite, no headache, great ambition to work and study. Ten per cent. oxyhæmoglobin. This result of treatment was much appreciated by the intelligent parents.

CASE VII.—*Chlorosis*.—K. W., nineteen years old. Menses scant, every eight to ten weeks. All other symptoms of great anæmia present; duration of illness four years. Eight per cent. oxyhæmoglobin. Ozone inhalations daily for ten weeks, during which time the menses appeared twice and at proper intervals. Three per cent. increase in oxyhæmoglobin.

CASE VIII.—C. B., twenty years old. Chlorosis, very much like Case VII.; no noteworthy improvement after ferrum. Oxyhæmoglobin eight per cent. Inhalations daily for three months. Complete cure. Three per cent. gain in oxyhæmoglobin.

CASE IX.—*Chronic Bronchitis and great Anæmia*.—A. S., forty years old. Eight per cent. oxyhæmoglobin. After daily inhalations for two months, great improvement as regards the anæmia. No special change, no bronchial catarrh.

CASE X.—*Chlorosis and Nervous Prostration*.—E. S., age twenty-four. Daily inhalations of ozone for four weeks increased the oxyhæmoglobin three per cent., and made further treatment unnecessary. No relapse after two months.

CASE XI.—*Anæmia and Chronic Naso-pharyngeal Catarrh*.—A. R., twenty years old. Oxyhæmoglobin nine per cent. Cured after inhaling for two months, and ended local treatment of naso-pharynx. Three per cent. gain in oxyhæmoglobin.

CASE XII.—*Chlorosis of long standing*.—E. K., twenty-two years old. Inhalation three months. All symptoms removed or much improved. Three per cent. gain in oxyhæmoglobin.

CASE XIII.—*Anæmia in Tuberculosis of Cutis*.—M. C., twenty-two years old, unable to attend to business; no

effect from usual drugs. After three months' inhalations patient is in an excellent general condition, but the skin affection remains stationary. Two per cent. increase in oxyhæmoglobin.

CASE XIV.—*Extreme Anæmia from Chronic Lead Poisoning*.—After fifty inhalations the oxyhæmoglobin increased three per cent. No relapse after two months.

Pertussis. (Seven cases).—For the sake of brevity the cases of pertussis shall be spoken of as a group. The ages of the children ranged from eighteen months to seven years. Each case was well marked and of average severity. Two to three inhalations were given daily and all the cases were discharged after two weeks except one case which lasted four weeks. No drugs were given, but salt-water was dropped into the nose three times a day. The improvement became manifest after the first three or four inhalations, as regards the severity and frequency of the spasmodic attacks. The children slept better during the night after ozone inhalation than before treatment, and the youngest children under observation usually went to sleep after each inhalation.

Some difficulty was encountered in getting the younger children to inhale, but it was finally found unnecessary to hold them directly over the inhaling tube as ozone is generated in such abundance as to be perceptible by its smell several feet away from the apparatus.

Conclusions.—Inhalations of ozone by means of Labbé and Oudin's apparatus have not been followed by noticeable ill effects.

Daily inhalations of ozone increase the quantity of oxyhæmoglobin in the blood from one to four per cent. in a short time, and this increase remains stationary for some time.

In three typical cases of limited apex tuberculosis a local improvement was not obtained by ozone inhalations.

In pertussis ozone inhalations have a very distinct curative effect as regards the duration and severity of the disease.

In chlorosis and anæmia ozone inhalations are exceedingly valuable from a therapeutic standpoint and give better and prompter results than any other form of medication.

Atmospheric disinfection is readily secured by means of Labbé and Oudin's apparatus, making this probably a valuable procedure in the treatment of diphtheria, scarlet fever and other infectious disease.

DISCUSSION.

Dr. HOLT.—I would like to ask Dr. Caillé at what stage in the pertussis this treatment was instituted.

Dr. CAILLÉ.—The children were seen when the spasmodic cough was well marked, perhaps in the first ten days. There was no doubt as to the diagnosis whatsoever.

Dr. HOLT.—The question was not so much as to diagnosis, but as to how far along in the disease the cases had progressed when the treatment was begun.

Dr. CAILLÉ.—There were perhaps ten to twenty-five attacks in the seven cases reported here during twenty-four hours. In most of the cases there were more than twenty attacks.

Dr. ROTCH.—I should like to ask whether any cases of pernicious anæmia in children have been treated by this method.

Dr. CAILLÉ.—I did not treat a case of pernicious anæmia. I did not have one at my disposal at that time.

Dr. ROTCH.—Should you think it would be of value in such cases?

Dr. CAILLÉ.—I am convinced from what I have seen that it would be of value in such cases. I am waiting for just such a case.

The anæmic children who came under treatment were very sick, especially the one case I referred to in which everything had been tried, and it was really remarkable how soon this child picked up and became better in every way after inhaling ozone. I was thoroughly surprised at the result.

Dr. ROTCH.—Was the blood examined to see whether they had a tendency to pernicious anæmia?

Dr. CAILLÉ.—The blood was simply examined for the percentage of oxyhæmoglobin, nothing else.

Dr. ROTCH.—It certainly would be a very great advance in our treatment of these cases of advanced anæmia which are so fatal in children. I have just had two young babies die of what apparently was pernicious anæmia. The usual forms of anæmia even if they are far advanced I think, as a rule, are amenable to treatment where the

anæmia is of the simple form; but it seems to me a great deal of good work might be done in that direction in having the blood examined for that purpose. It is perfectly possible some of your cases were on the verge of being pernicious anæmia and that you cured them. It would be a great advance in rational medicine if we could treat cases of that kind.

Dr. NORTHROP.—I should like to ask Dr. Caillé to give us his impressions in regard to the instrument apart from the written lines of the paper. He tells us in the early stage of tuberculosis he found no satisfaction, in anæmia great satisfaction, and in whooping-cough also. I should like to ask if he feels very much encouraged that this is the right thing to use? I should like to ask about the price of the instrument, whether it is durable, etc., and ask about another class of cases, namely, the blood dyscrasiæ, purpura, etc.

Dr. CAILLÉ.—I have been surprised at the result of this treatment and very much encouraged. The apparatus as it is constructed here would cost at least \$15 to \$20 and be beyond the reach of many of our patients; but it seems to me that a very cheap spark coil could be constructed. The inhaler is not expensive, and with a cheap apparatus I think we could do a great deal of good. I have not treated a single case of purpura as yet. The whole matter is somewhat new to me and I propose to continue the investigation. I shall report at some other time. Those cases of purpura which come up occasionally and progress in a pernicious manner would certainly form a test of the efficacy of this treatment, and if I could get such a case under my care I shall be very much interested in trying this form of medication.

Dr. NORTHROP.—I should like to ask whether the instrument gets out of order.

Dr. CAILLÉ.—The glass tube as you see it there does not look durable, but that can be overcome by placing a box around it and allowing the end to project. That would do away with one serious objection, otherwise the apparatus does not get out of order. Inasmuch as the apparatus can be placed in a small room in a closet or cabinet, and would certainly fill the room with ozone in a short time, direct inhalations are really not necessary in the case of small children. They might sit in this room on the lap of a nurse and the atmospheric disinfection would be sufficient, and ozone inhalations might be administered to very young children without any difficulty and without

direct application. The young child is restless and does not care to inhale directly.

Dr. BLACKADER.—I should like to ask whether it has an immediate effect on the pulse and circulation, or is it only through the effect on the blood corpuscles?

Dr. CAILLÉ.—In adults it appeared to me that the heart became markedly slowed. The pulse was strong.

Dr. FISCHER.—Dr. Caillé said in the course of his remarks that he had no results in tuberculosis, whereas experiments in Paris were very favorable as regards tuberculosis. He states that he had good results in anæmia and chlorosis. Now we recognize a pretubercular condition which manifests itself as an anæmia sometimes or chlorosis. I have seen several of these cases where on examination the diagnosis of pulmonary tuberculosis was not made, but where on examining the sputum tubercle-bacilli were found. I should like to ask whether in these cases he had examined the sputum or other excretions to determine this. Might it not be that these cases were tuberculosis?

Dr. CAILLÉ.—The cases of anæmia were not examined for tubercle-bacilli not one of them. I imagined that if ozone inhalations had any curative effect directly or indirectly in tuberculosis, that cases of apex tuberculosis in the first stage in patients in good hygienic surroundings and circumstances must be benefited, and according to the statements of the French colleagues who report that out of thirty-eight cases thirteen were cured, I was almost sure of good results, but I was very much disappointed. I found no local improvement, and in the three cases I found tubercle-bacilli after the treatment just as before the treatment. I did not examine for tubercle-bacilli in the cases of anæmia. They were the ordinary severe cases of anæmia that come to us and there was no special indication for examining the sputum. I dare say it would have been difficult to get the sputum. They had no cough. They presented the ordinary symptoms of severe anæmia and I did not examine the sputum.

Dr. RACHFORD.—May not some of these cases have been cases of simple anæmia? I have found in my experience that I could not make a differential diagnosis between chlorosis and anæmia except by estimation of the blood corpuscles and the amount of hæmoglobin. May it not be possible that some of these cases were not true chlorosis, but simple anæmia? I should like to ask upon what the diagnosis was based.

Dr. CAILLÉ.—Pale, clammy skin. Very low percentage of hæmoglobin; loss of appetite and loss of menses in the case of the older patients; headache; coated tongue; insufficient amount of sleep; dizziness; inability to work; heart palpitation.

Dr. RACHFORD.—By chlorosis you refer to the reduction in the amount of hæmoglobin and not any reduction in the amount of red blood corpuscles?

Dr. CAILLÉ.—I determined the amount of oxyhæmoglobin. The diagnosis was based upon that and upon the usual symptoms as we meet them. In my opinion the precise pathological position of anæmia, chlorosis and leukæmia can not be determined by counting blood corpuscles.

MANIFESTATIONS OF "LA GRIPPE" IN CHILDREN.*

(SECOND PAPER.)

BY CHARLES WARRINGTON EARLE, M.D.,

Chicago.

IN my contribution to this society last year I remarked that three consecutive yearly visitations of this disease should, in my judgment, be considered a national calamity. The experience of the last year causes me to reiterate this statement, for, while the epidemic has not been in any degree as severe as the two previous ones, yet a very large number in all communities are feeling the effects of the extreme prostration which comes from this

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malady and the sequelæ which follow, and we are called upon to prescribe heart tonics and general stimulants and rest and abandonment of business for a time, for the remote complications of this disease with very great frequency.

I am not a pessimist in anything, indeed a very bright sky is almost always over me and my line of vision sees naught but pleasant and in the main beautiful things; but when I see a robust child without a taint of inherited disease, and with a perfect nutrition, prostrate in a few hours with grippetoxine, perhaps unconscious, possibly delirious, or with a catarrhal difficulty of either or both alimentary or respiratory tracts which threatens life; and when I remember the long list of complications which may come to this little one if haply it recovers from the acute attack, it is then that I say it is a calamity.

In this paper I do not propose to go into the geography of this subject, and I shall say but little of its ætiology.

I desire to correct, or rather amend, one statement made in my first paper in regard to the time when the epidemic of 1889 and 1890 commenced. I am now satisfied that I saw a case in consultation December 17, 1889. It was exceedingly severe, but the child recovered. It was, however, the middle of February, 1890, when that epidemic attained its greatest magnitude.

It would, perhaps, hardly be permitted for me to say that the exact cause of this disease has been discovered, but we must all do honor to those active workers in the Berlin Institute and in other places, and express the hope that their investigations will stand the test of future investigators, and that having found the germ of influenza (when it is fully demonstrated) that we shall find some antidote for its products.

Age.—The testimony that very young infants may have this terrible disease is increasing. Dr. Townsend, of Boston, has placed on record a case where the mother had an attack of influenza either before or shortly after her confinement, and the child very soon after its birth commenced to sneeze, had increased respiration, followed by

a temperature of 104° , passed through an attack of the grippe. It is fair to believe that this child was infected before or within a short time after its birth. Another case taken from the *British Journal*, narrates that the infant died on the third day, having had a high temperature, rapid respiration and pulmonary catarrh. The mother of this child had influenza four days before her delivery. Dr. Fuchs, of Buda-Pesth, believes that there are many cases of influenza taking place in young children. It is conceded by all that it is exceedingly difficult to diagnose influenza in very young patients, but it is fair to suppose that when the infection is present in the house, and parents and nurses are under its influence, children who within a very few hours after birth present the usual symptoms of temperature, the exhaustion, the greatest possible prostration, and with the involvement of one of the three systems which are usually selected by this infection, that the disease is due to the poison of influenza.

Incubation.—This may be only a few days, possibly only a few hours, or the influence of the poison may be felt for weeks before the active development of the disease. Dr. Parsons, who has made an extended report, believes, however, that two or three days is the usual time of incubation.

Does Influenza Protect from Subsequent Attacks?—This question has arisen in the minds of almost all practitioners, and while we have all seen cases where it seems as if there was a second or third attack, yet the question may fairly be raised as to whether the morbid element has ever been out of the system. It would be an interesting question for us to decide how many of our families infected in 1890 escaped during 1891. It would be a happy fact if we could state to our people that the first infection gives immunity from a second. If it follows the history of the other acute infectious diseases it appears to me that we may with some degree of truthfulness give this assurance, although we are all well aware that second and even third attacks of other infectious diseases do take place. I can state this, and I think others will agree with

me, that those families particularly afflicted in 1889 did not develop the disease in 1890, and not one of those whose cases was given to illustrate and verify my paper of last year has had a recurrence.

Clinical history.—To illustrate the rapidity with which the disease advances, I place on record the two following cases. They occurred early in the epidemic of 1891 and 1892:

December 25, 1891.—Baby Farr, bottle fed, aged seven months, has been sick several days with diarrhœa, during which time has lost considerable flesh. Condition at first visit: Pale, eyes sunken, worries and frets continually and at times seems in pain, and as if he would have a spasm, vomits a little, refuses all nourishment, has watery diarrhœa. Temp. 101.5° . December 26th: Diarrhœa less; general condition about the same. December 27th: Early in the morning passed into collapse and died.

December 27, 1891.—Baby Riordan, bottle fed, aged ten months, has been sick with diarrhœa for a few days, which has withstood all domestic remedies, and a physician is summoned. Condition at first visit: Pale, eyes somewhat sunken and with dark rings below, very restless, cries almost constantly, and has a watery diarrhœa. Temp. 100° . December 28th, P.M.: Child very thirsty, vomits and purges copiously (watery discharges), restless, pulse rapid. Temp. 101° . December 29th, A.M.: Collapse and death.

The following case shows the irritability which continues from week to week:

Bessie Munger, aged eighteen months. The mother was advised by the attending doctor to wean the baby, which advice, I may remark in passing, I think is given too frequently by many physicians and without proper consideration of what the remote result may be in case the child is not healthy at the time such advice is given. During the first week her symptoms were irritability, some fever, no diarrhœa or vomiting, some intestinal pain, more or less bronchial catarrh, with some evidence of nasal and eye irritation. During the second week she was peevish, nutrition bad, temperature occasionally below normal. During the third week irritability continues, she seems to be in pain whenever she moves,

sometimes slightly increased temperature and at other times it is found to be below normal. Convalescent during the fourth week.

Referring to the irritation of the eye in the above case, I am led to make the following observation:

The exact point at which the infection gains entrance has probably not been ascertained. That it may enter through either the lung or alimentary canal there is probably no doubt, although Dr. Thorne thinks that the conjunctiva is the structure which the infected material or microbe most generally attacks.

The symptoms which are frequently present outside of those referable to any one set of organs, are as follows:

Warren Wells, aged twenty-one months, cross and irritable, parents believe him to be troubled on account of teething, appears weak, has slight cough, and is losing flesh. Glands in his neck are swollen, ears are discharging. Nothing particularly referable to either the alimentary canal or respiratory apparatus. His skin feels cold. Temp. $97\frac{1}{2}^{\circ}$ (groin). Pulse 120. Appetite poor, but sleeps fairly well.

Otitis becomes at times not only a life-threatening complication but a malignant one. It is believed by some of the investigators that in conjunction with pyæmia and meningitis from empyæmia of the frontal sinuses, it presents the most frequent cause of death after pneumonia.

The nervous system.—Symptoms referable to the brain and nervous system are very prominent, and the lancinating pain in the limbs and general soreness of the entire body, which I noticed in my first paper, has been demonstrated without a doubt. There is constant agitation, crying and headache, and the neuralgias are excessive.

Dr. Julius Althus has recently (*Am. Journal Med. Sci.*, April, 1892) published an exhaustive article on mental affections after influenza. He gives cases illustrating neurasthenia, hypochondriasis, melancholia, delirium from inanition, homicidal tendencies and general paralysis.

Any one at all sceptical regarding the profound influence which the poison of the disease produces upon the nervous

system, should read the article. He believes that the psychoses observed after grippe are far greater than that observed after any other infectious disease.

I do not present any case of pronounced mental disease, but the extreme prostration and cerebral anæmia which is experienced by some of our little patients is shown in the following:

Margaret Garrity, aged four-and-a-half years, always healthy. Had the grippe in mild form in 1890 and 1891; some weeks after would have what was known to the household as "a spell," which meant a development of pallor, evident dizziness, and a vacant look to the eyes. She would complain that she could not see, and at least in one instance developed a temperature of 104° . She was prostrated, nutrition was poor; listless; but not an organ in her body could be found diseased by the closest examination. Weeks and weeks of treatment, with the usual tonics, supplemented with digitalis and followed by hydroleine after each meal, has restored her to perfect health. I need not say that I believe this to have been a complication of influenza.

Other symptoms.—Time will not permit me to speak of the numerous and varied complications observed in almost every organ in the body. Their name is legion, and their manifestations extend to every organ and function of the body.

Among those which I have noticed, not yet recorded, is purpura. Of this I have seen four cases within the last three months, all in young people, attended with great weakness, and all evidences of prostration and more or less blood change. Although not occurring in children, a short clinical history may be of interest.

Mr. T—— had influenza January 29, 1892, suffering with the usual depression, pain in the limbs and prostration. One week later developed a purpura, confined mostly to his lower limbs and arms. During the last three months there have been about twenty crops of these purpuric spots. It is fair to say, however, that he has had a slight attack of rheumatism, which I do not regard as necessarily a complication of the grippe, but the deterio-

ration of tone in his blood-vessels and the peculiarity of his blood, I do think is due to that disease.

Miss B——, aged twenty-three, has not been well since May, 1891. Does not remember of having influenza, but probably did have it, as she has felt weak and prostrated. In October, 1891, noticed purpuric spots on her toes. This condition of things (purpuric spots) continued until January 11, 1892, when she had the grippe, affecting more particularly her nervous system. She then commenced to have epistaxis, which continued for nearly six weeks, not a day elapsing without its occurrence. She is now under a course of tonic treatment with travel, and slowly but certainly improving.

Influenza and diphtheria.—The analogy between the remote effects of the poison of diphtheria and influenza are very close, and the pathological findings in the last-named disease may be quite as numerous and significant as we have already found in the former. We probably cannot say that we know the exact cause of influenza, but we are certainly warranted in assuming that there is a most profound toxic effect in influenza as well as in diphtheria. The depression is profound, and in many cases the recovery slow and tedious, and the evidences of involvement of the nervous system, as noted in the different paralyses and neuralgias, are significant. The action of these two poisons upon the heart is quite similar. We have noticed in some cases the slowness of the pulse, its irregularity, and in some instances death, which we could ascribe to nothing less than degeneration of heart muscle. I have no doubt that we shall find the same evidence of nerve change that we have found in diphtheria.

Dr. Thompson in a course of lectures at Gresham College has also called attention to the sharp contrast between the nervous sequelæ of influenza and those of diphtheria. He states that in diphtheria the paralysis is motor, while in influenza it is essentially sensory. He calls attention to the symptoms referable to the lungs, stomach and heart as suggesting the action of the toxic agent upon the pneumogastric nerve.*

I desire to call attention particularly to two symptoms which are not noticed to any considerable extent by systematic writers, viz., subnormal temperature and loss of weight.

Subnormal temperature.—During the epidemic of 1891 my attention was called a few times to subnormal temperature. During the last epidemic, that of 1892, my observations have extended to some fifty cases, and I have noticed in as many as six children, daily, a temperature varying from one-half to two degrees below normal; and yet they were not sick enough to prevent them from playing around the house. In one case the highest temperature which I could get in the axillary space was 93°, which continued for three days with no other apparent symptoms. The pulse in several of these cases was not disturbed in the least, and many of the children appeared normal in every other respect.

Subnormal temperature has been noticed by Strauss-mann (*Arch. f. Kinderh.*, xiii., 1 and 2.) This is produced by the infection affecting the general nutrition in such profound degree, the imperfect action of the lungs, which is present in so many cases, and the general depression of the vital forces.

Taking this symptom in connection with the one I recorded in my first paper, quoted from Hansen, we have two symptoms which show, it appears to me, the resistance which is necessary to be expended to oppose the development of this disease.

Loss of weight.—Hansen says: "In the asylum for deaf and dumb, at, Copenhagen, all scholars are weighed daily. The figures do not give the weight of the individual child, but of groups. In 1889 the curves were usual. From November 22d to December 21st, 1890, the usual increase in bodily weight ceased, in girls entirely, in boys there was only 200 gr. instead of the usual 700 gr. per month. In feeding and all local conditions there was no change during this time. Influenza was prevailing at Copenhagen during this period." The author's conclusions were that this peculiar standstill in the normal weight represented the conflict between the influenza poison and

the subjects, and that all had the disease, although none of them showed other signs of its presence.

Treatment.—In conclusion, I have no particular remedy or combination of remedies to suggest. Every physician will have his own group of drugs and his own individual recommendations. We should, however, see these cases early, and should not consider them discharged from under our care until they are fully recovered. While we are passing through such epidemics as have visited us during these late years, and burdens are grievous alike to ourselves and to the families who employ us, we sometimes neglect to visit our patients frequently enough, and permit them to pass from our observation before they are fully and perfectly recovered to a healthy condition.

In closing I desire to say a word in regard to the municipal control of the influenza.

We can never know the money loss, or the mortality which comes from this disease. We do know something of the affliction which it brings our families, and the pain and ill-health which is surely following.

I have said it is a national calamity. Is it worth while to try to check it? Is it possible for us to do anything in this direction? If one political party would propose it, the other would object, and *vice versa*. Many would declare it was a scheme of the doctors to enrich themselves, and we would be obliged to take a small standing army with us to enforce isolation.

The following facts, however, have been quite fully demonstrated by Dr. Sissley, of London.

(1.) The first case of influenza in a town is of a patient who has come from an infected place.

(2.) Isolated cases precede an epidemic.

(3.) Influenza extends along the lines of human intercourse.

(4.) Isolated persons such as prisoners and inmates of asylums and convents often escape the disease.

(5.) The number of those affected in an epidemic increases till a maximum is reached and then decline, as in the case of other contagious diseases.

The Prince of Wales, presiding at the late International Congress of Hygiene, remarked, "If preventable why not prevented?"

DISCUSSION.

Dr. ROTCH.—I suppose it would be well to speak of influenza in connection with young infants. The subject has been so much written about and spoken of so widely in adults that it would be more interesting to our society, I think, to speak about the younger subject. I have not especially spoken to my colleagues in Boston as to their experience in comparison with my own. I was very much struck, however, by what Dr. Earle said of the national calamity and the severity of the disease. Of course we recognize it as a national calamity as a whole. My own experience with la grippe in young infants in quite a large number of cases has been rather different from Dr. Earle's. It seems almost as if diseases were more severe in the West than in the East. At the second meeting of the Pediatric Society in New York, typhoid fever in infancy and childhood was spoken of in a manner which made me almost sceptical that we had the same disease in the East as in the West, our experience on the eastern coast, I think, being that it is a mild disease, while in the West it was spoken of by Dr. Vaughan as being an exceedingly severe and fatal disease. We now hear that influenza is a very severe disease in infancy. During the early part of the epidemic of the present year I happened to be on service in my Infant Hospital where all the babies had influenza. The cases, I think, were the earliest cases in Boston before influenza had attacked the older children and the adults. My experience in 1889 was, that the adults were attacked first and the children later, it being possibly that we had not learned to diagnosticate the disease so well at that time. Although they were undoubted cases of grippe, almost without exception they were mild. There were no cases of death. I should like to ask Dr. Earle whether in the fatal cases any autopsy was made, and whether it was the grippe poison, the disease as a whole, or a complication which caused death.

Dr. EARLE.—We tried in every instance, particularly in the four or five cases I reported last year, to obtain an autopsy, but could not.

Dr. ROTCH.—I saw quite a large number of infants and I should say they were affected in a much milder form than adults, and that the description of them as a whole

was, that they were disconsolate. A perfect picture to my mind of a baby with the grippe in the East was a very disconsolate picture, but they got well.

I will not go into the subject, which has also been worn pretty threadbare, as to what part of the system is affected by grippe. That it is a nervous disease caused by a poison affecting the nervous system in some way, I think, is being more and more acknowledged, and I think it is more an affection of the sympathetic than central nervous system. There is an immense variety in the symptoms, and to such an extent that it seemed almost that it must be the sympathetic nervous system that was affected. That, however, will be for the future to decide. Diversity certainly is the word which covers the symptoms of grippe.

Dr. JACOB. — Since I read a paper on the subject of grippe in little children before the Academy two years ago and published it, I have not seen many cases that induce me to change the position I took at that time. I could not find that the symptoms of grippe in children were much different from those in the adult. If we distinguish the three forms of respiratory, gastric and nervous influenza, the symptoms were principally respiratory or nervous, the latter, to a certain extent, very severe; at the same time, I wish to state that I cannot find the parallel at all that Dr. Earle is inclined to draw. The nervous symptoms of influenza and diphtheria have absolutely nothing to do with each other, as far as I can judge. The nervous symptoms in influenza are more of a general character. They are depression, general lassitude, the psychical anomalies, such as melancholia or tendency to suicide. They are certainly not to be compared with what we see in diphtheria. The nervous symptoms in diphtheria are the result of the extension of the diphtheritic process, or rather an extension of the bacillus or ptomaine into certain nerve localities. We know we have to deal simply with a paralysis. We know that the paralysis will, as a rule, run a certain course and invade certain localities, so I think we ought not to try to compare the two or establish a parallel between the nervous symptoms of influenza and of diphtheria for the two must certainly be two different diseases altogether.

Dr. CAILLÉ. — I have seen a number of grippe cases in children in the last six months and there is one very harassing symptom I have observed, and that is a peculiar reflex cough which resembles whooping-cough. I

have observed it a number of times. It will not get better without local treatment, unless the naso-pharynx is irrigated and perhaps the larynx treated with mild solutions of nitrate of silver, it may last a week to three weeks and resembles whooping-cough very much, indeed.

Dr. HUBER.—It is true the surface temperature may be low, and perhaps the surface temperature measured by the thermometer may be low, but if the temperature be taken in the rectum I do not think you will find that marked discrepancy to which Dr. Earle has called attention.

Dr. HOLT.—The clinical picture I have seen resembles the one Dr. Rotch has described and certainly not at all the one that Dr. Earle has given us. The cause of death among the cases I saw last year was two, mainly pneumonia. In the New York Infant Asylum in the first epidemic two years ago, the small children escaped almost entirely. During the epidemic last year a large number between the ages of one and two years were affected. Whether due to the same poison or not, we had an epidemic of pneumonia with between thirty and forty cases in a single month. These were of great severity and about two-thirds proved fatal. The peculiarity of the lesions of the fatal cases was the extraordinary amount of plastic exudation in the pleura. Several went on to the development of pus, but most of them died before this occurred. Such an epidemic of pneumonia has never been seen in the institution before. In many of the cases there were none of the ordinary symptoms of influenza before the pneumonic attack. Whether this is to be looked upon as an epidemic of influenza with pneumonic complication I am unable to say. It looks as if the two had some relation to each other. In the other cases I have seen the temperature has been high and usually of short duration with a good deal of prostration, and in many cases only that; the catarrhal symptoms being very few. The mortality was low unless pneumonia develops.

Dr. ADAMS.—In my experience the epidemic has materially changed in many of its characters in young children in the past three years. It is my belief that the climatic condition or locality has a great deal to do with modification of this type of disease, and that would probably account for some of the anomalies or peculiarities recorded by the essayist. My experience accords with that of Dr. Holt as to the temperature. In these cases it has been a very high temperature and accompanied by the symptoms

which we would usually have with a high temperature. It has been remarked by a number of physicians in private conversation, in Washington, that in this epidemic all of us who know anything of the previous epidemic in children, and recently in the Childrens' Hospital, were placed in an awkward position. We had during the months of March and April an epidemic of scarlet fever in that hospital, and it seems to me when the epidemic and isolation was taking place we had a number of cases of very high temperature in the younger children, and it was as much as the attending physician could do to prevent the resident and head nurse from consigning these children to the contagious ward in the top of the house before the attending physicians came, the symptoms were so much alike, and particularly that the high temperature was accompanied by a peculiar rash or a general erythema.

Another point, and that is, that very many of these cases in young children are accompanied by so much pulmonary congestion that they are frequently, in my judgment, mistaken for pneumonia and reported as pneumonia. Dr. Holt, in a paper recently read before the Medical Society, expressed the belief that pneumonia was not aborted by any medicinal means, and it was not a surprise to some of us that he, after his vast experience, would give out such a doctrine. In a number of instances that I have seen during the past winter and spring there was a decided pulmonary breathing, only, however, a slight dulness accompanied by high temperature in some with decided initial symptoms, chilly sensations and many of the initial symptoms of pneumonia, and it was sometimes a difficult matter to differentiate, and I would not express an opinion at the first or probably the second visit that it was not pneumonia, that it was simply grippe, but the subsequent history of the case proved that they must have been grippe because other children were affected similarly, and I remember on one day I saw under the age of two years, in private and in consultation, twelve to fifteen children with exactly the same run of symptoms. In one family I had eight patients sick with it, and out of the eight there were five who were under the age of eight years. In many of these, particularly the younger, we had the symptoms of the initial stage of pneumonia. I do not believe that it was aborted pneumonia, but simply a congestion, and that the symptoms present were due to the elevation of temperature or the hyperpyrexia. I am also of the opinion that if the temperature

had been taken in the rectum of many of these children we would have gotten a higher temperature rather than subnormal. Of course, after the symptoms have subsided and prostration comes we may have subnormal temperature as in other infectious disease, typhoid fever in children, particularly the temperature, may run a subnormal course after the disease has subsided.

In very many of the cases in children which I have seen during the past winter which differed from the two preceding epidemics was rheumatism, very decided symptoms of rheumatism, and so much so, that Dr. W. W. Johnson, who is recognized in Washington as being the leading practitioner, called attention to that fact in a meeting of the Obstetrical and Gynæcological Society, and asked whether the experience of others had differed in regard to the symptom of rheumatism in these young children. Oftentimes it was one or two days before he was able to differentiate, the pain was so intense and resembled so much the attacks of rheumatism, but waiting for further developments of rheumatism they did not occur.

If these cases differ, as they certainly must, in the experience of the East and West and central part of this country, it must be due to the climatic condition which modifies the condition, just as in New York City they have a number of cases of lobar pneumonia in children, and with us it is an infrequent disease to have a lobar pneumonia in children as we recognize it.

Dr. BLACKADER.—As this has taken somewhat of a local turn I may say a few words about the epidemic of last year in Montreal. I think I would bear out the statements just made by the last speakers as to the fact, first of all, that we have had more children affected during this last epidemic than the previous. I think I may say, however, that comparing adults and children we have had far more adults than children, the children have been still in much the smaller numbers.

In regard to the character of the attack. In every case I have seen there was more or less high temperature. The character of the attacks have been that of influenzal character where I have noticed this reflex cough, case coming on with pneumonic symptoms, of brief duration and sometimes with gastric symptoms. Those have been the three characters I have generally been able to discriminate.

As regards fatal cases I have not had in Montreal any case I could say was distinctly grippe that ended fatally.

There have been cases of pneumonia possibly of the group Dr. Holt speaks of. I had one or two cases of pneumonia that proved fatal, but the thing was so strictly pneumonic that I did not call it grippe nor do I think I had any need for doing so.

Dr. BOOKER.—I have had very slight experience with the grippe. I was struck with the observation of Dr. Caillé about the reflex cough. One case I have seen in a child which I thought was grippe, and this I thought from the fact of the great prostration, was accompanied with a cough diagnosticated by the parents as whooping-cough. I never heard the child whoop, and I am satisfied it was not the whooping-cough but a particularly persistent cough which lasted about two weeks and was finally relieved by irrigation with boracic acid. This cough was peculiar. It was very annoying to the child and probably had something to do with increasing the prostration, but the child was a good, fat, healthy child before this attack and it just became completely prostrated, and there was nothing that I could find the matter with the bronchial tubes or the lungs or throat. There was some slight discharge from the nose.

Dr. ROTCH.—All the babies at my hospital had the cough and I supposed it was whooping-cough in the beginning. It passed off, however. The rash which has been mentioned was also noted, and there was the same impulse to regard such cases as scarlet fever at first.

Dr. EARLE.—I am sorry there are no other gentlemen from the West to corroborate some of my statements, but as I am the solitary individual representing the entire West, it looks as if you would have to trust what I say or believe we have the grippe much harder West than here, and I certainly think we do. I certainly think we do. Why, gentlemen, I have seen more severe cases of diarrhœa and vomiting in the middle of the winter during the last two or three years than I have seen in the middle of the summer when I supposed we were having cholera infantum. I have never seen such prostration in the middle of the summer with bottle-fed babies as I have seen in the middle of the winter from what I supposed was produced by grippe. Whether we have other diseases somewhat different as regards type, such as typhoid fever, I cannot say. I remember that I differed from Dr. Vaughan in regard to his epidemic of typhoid fever as he narrated it some years ago. But when we speak of typhoid fever as we have had it in our vicinity the last year and a half, I do not know but what I shall have to agree with him.

The point made by Professor Jacobi who had noticed that children are afflicted late in the epidemic has always been true. That is a fact which has been noted by all observers, a fact which has been laid down by all of those who have written upon the subject as far as I know or remember.

I think that Dr. Jacobi misunderstood me that I believed that the same poison produced diphtheritic paralysis or manifestations of nervous difficulties in influenza. I did not mean that. I simply meant this, that I believed that as we have found that without a doubt it is not a bacillus which produces the paralysis in diphtheria, but rather its products of a germ peculiar to that disease as it is the products of a germ peculiar to influenza that produces the nervous manifestations, and it appears to me that we will find eventually that it produces quite as profound nerve-change as we know now is produced by the poison, the toxine of diphtheria.

Just a word in regard to the threatened pneumonia. I have repeatedly seen a case, for instance, late in the evening of one day, have put my ear to the chest and have diagnosticated a pneumonia, that is, I have found that there was increased fremitus. It appeared to me that the breathing sounds were only separated from my ear by a space, perhaps, as thick as a single piece of paper, and I have said to myself, and in two or three instances to my assistants, there is pneumonia. The next day every sign and trace of that localized inflammation had disappeared and the child was suffering from an extensive bronchial catarrh. That it appears to me is one of the peculiarities, one of the ways that the grippe poison affects the respiratory apparatus, and I have learned to place some reliance in a diagnostic way, upon this rapid diffusion from what a few hours previous appeared to me to be a localized inflammation.

In two or three epidemics, the literature of which I have gone through, the babies have been affected last. That is what I meant to say. That is what is recorded in regard to other epidemics. It is my experience in the last two.

Dr. ROTCH.—It was recorded here that they came first.

MANY babies suffer intensely because they are not limited to intervals of from two, to four or five hours, as required by either age or constitution.—A. Jacobi, M.D., in "*The Intestinal Diseases of Infancy and Childhood.*" (Davis.)

AN EPIDEMIC OF BALDNESS IN SPOTS (ALOPECIA AREATA?) IN AN ASYLUM FOR GIRLS.*

BY CHARLES P. PUTNAM, M.D.,

Boston.

IN January, 1891, a child of eleven years was sent to me from the asylum with two or three bald patches on the crown of her head. The affection seemed to be plainly alopecia areata. The spots were smooth and white. There were no crusts, scales or broken hairs. This child had been in the school eight years and had not lived outside of the school at any time nor associated with other girls. A mild wash was applied and syrup of iodide of iron in doses of ten to fifteen drops was given internally. The child was rather pale, but had not been considered weak or sickly. As no improvement was observed during the next six weeks an ointment of chrysophanic acid, ten per cent., was applied with no perceptible result.

In March, another child was found to have on her head a bald patch which increased very rapidly, and within a few days, became as large as a silver dollar, and also several small ones of irregular shape.

A little before the first of June, the disease suddenly became very common in the school. The hair had been worn short but not shingled, so that small spots were not readily discovered, but on thorough examination one child after another was found to have bald patches greatly varying in size. The smallest seemed to depend on the loss of a few hairs. The patches were, when very small, irregular in outline, but as soon as they attained any considerable size they became nearly round. The skin was white, and in one or more cases, decidedly atrophied, making a pit readily felt with the finger.

We shingled the hair of all the children and found that the number of those affected was even greater than we had supposed. In all, sixty-three children (out of sixty-

* Read before the American Pediatric Society, Boston, May 2, 1892.

nine from three to fourteen years of age) had the disease to a greater or less degree; many of them having a great many spots, some of which were very small. It was difficult to count them accurately because some were so small as to throw doubt on their real existence and there was an imperceptible gradation from them to the well-marked patches. The largest number actually counted on one head was eighty, and a great many were omitted as doubtful that might, perhaps, have been counted.

From this time the head of each child was washed daily with corrosive sublimate, at first 1.2000 later 1.1000. For more than a month the heads continued to get worse. One child acquired a spot after she had been in the asylum three days, and soon after she had three undoubted spots and some doubtful ones. One patch on another girl (the first case) extended to the nape of the neck, outside of the hairy scalp, and about half of her scalp was bare. Some cases had increased in the number and others in the size of the patches.

On the second of July five different methods of treatment were added to the regular washing with the corrosive sublimate solution. Six girls had the spots dabbed with corrosive sublimate, two grains to the ounce; six were painted frequently with tincture of cantharides; six had thorough inunction with sulphur ointment; six with cantharidal ointment; six with turpentine.

On the sixteenth of July the first sign of improvement was noted, but still on some of the girls' heads there continued to be an increase either in the number or size of the spots.

After the first of August we could not see that the disease was advancing in any case and from that time there was a general improvement though it was impossible to see that any one of the above-mentioned special treatments had made any difference in the result. The improvement was distributed evenly throughout the six classes.

At the end of December almost every spot was more or less overgrown with hair, though on a great many of the

spots the growth was thin. Though a few bald spots could be found still, a great many had quite disappeared. This improvement has continued so that now, the hair being no longer shingled, no spots can be seen without careful searching and but few can be found at all. But as a rule, the hair grows more sparsely on the parts where there were large patches than on other parts.

On the twenty-ninth of June, 1891, six girls had no patches and were therefore sent away to board. They were carefully inspected from time to time, but all escaped the disease.

Many hairs from around the patches were examined by Dr. Bowen and myself at several different times. No micro-organisms were found nor was anything observed except that the roots were atrophied and the hairs somewhat more slender than usual.

The second girl to be affected was of a different age from the first. She went to a different school-room and slept in a different bed-room, and they did not meet except in the dining-room and then sat far apart. They might, of course, have passed each other in the entries or have met in the yard occasionally during the two months that intervened between the attacks. Each child in the school had her own clothing, including hats, and each had her own comb, towel, etc.

After the disease began to spread no particular groups seemed to be affected at the same time, and the six who escaped entirely were with the rest until the end of June.

It is also worth noting that four older girls who acted as junior officers, and have always had long hair, were not attacked. They slept with the little girls as monitors until the epidemic was well under way and were then put into a separate room. After that they still assisted in washing the younger children, and in taking care of them through the day. Nor were any of the matrons affected.

Alopecia areata is by English and German-speaking writers almost universally regarded as non-contagious. Only Hillier, as far as I know, speaks of an epidemic in a school. Out of eleven hundred children forty-three sud-

denly developed bald spots and then it was found that one child had had the disease for a long time. Hutchinson also speaks of cases which suggested that it might be contagious. It has been reported that several members of a family were affected and it was then sometimes regarded as hereditary.

Dr. Ernst, of this city, has seen a teacher and two of his pupils affected by it at the same time. Several French writers, notably Besnier, have regarded the disease as contagious, and they have, as has also Hillier, described micro-organisms as giving rise to it, but the descriptions differ so much from each other as to throw doubt on the accuracy of the conclusion.

Certainly the last word on this subject has not been said, and a micro-organism may yet be found. I would offer the rather bold suggestion that if any one case of alopecia areata is due to nervous influence then an epidemic of it may be due to the same cause and may be regarded as a mimosis, just as when one child in a school acquires spasmodic or abnormal nervous movements, many or all of the children in the school acquire the same movements, so that such movements seem to be contagious.

I wish to acknowledge my obligation to Dr. J. T. Bowen, who was kind enough to see and give advice about the patients several times and also to examine the hair.

DISCUSSION.

Dr. BOWEN.—I am very glad to have this opportunity to put myself on record about the epidemic, which I wish to do quite positively. It seems to me there is no question that ringworm is not to be thought of. The clinical appearances were never those of ringworm. I examined on two different occasions the whole sixty-three children, and could not find a single spot which was typical of ringworm, no scaling, no stumps, nothing which looked like ringworm. The microscopical examination was entirely negative. A great many hairs were taken from all over the scalp and from a great many different children and at a great many different times, and I never could find anything that looked like a spore or bit of mycelium. It seems

to me impossible, clinically, to separate these cases from the ordinary alopecia areata that we are in the habit of seeing. Studying it carefully, looking over all the cases, the only point of difference that I could see is, that it seems to me that taking them as a whole there were more of these very small spots such as Dr. Putnam has spoken of, where it was difficult to assure myself whether they were spots or not. It seems to me if a large number of cases of sporadic alopecia areata could have been got together that the school children would have been found to have more of these small spots. Many of the cases were practically typical of the alopecia areata as we see it daily, and this difference in size was the only point of divergence from the ordinary type that I could assure myself of. I wish to repeat very positively my conviction that there was nothing like ringworm about it. I have no hesitation in including this epidemic in the class of cases described by the French writers as alopecia areata in schools, camps, etc. The English have described such epidemics, but as far as I know, none such have been described in America. I think it is unique here, at least so far as description goes.

Dr. WHITE.—I had the pleasure of seeing five or six of these cases in the early period of the epidemic. I did not see the school as a whole. The cases which I saw differed decidedly in some points from the ordinary cases of alopecia areata in my opinion. I have seen a great many cases of that in many years. I have seen three or four cases in which it occurred in more than one member of the family, but never in more than three. I am at present treating two cases in one family. It differed not in the surface appearance at all, but to my mind the outlines of the spots were more irregular, more angular than we ordinarily see in alopecia areata. I do not say they were not cases in which the area was well defined, but the chief peculiarity was the angularity of spots.

In the second place, the spots were far more numerous than ordinarily show themselves, and third, the development of the disease was far more rapid than any cases of alopecia areata I have ever seen. They would in a few days present ten or twenty areas of alopecia, very small many of them. In all these respects it differed from ordinary alopecia decidedly.

Now, if we study the pathology of the disease and the history of these so-called epidemic instances it seems to me that we may be dealing with a disease which is not

alike in all cases, that although the surface appearances may simulate each other that they are in fact different cases. I do not think there can be any doubt that sufficient investigations have been made to show that the majority of cases of alopecia areata are not parasitic, but I do not see how it is possible to explain these cases, and cases like these without the acceptance of the theory that it is a germ disease. It is evident, I think, from the fact that too many germs have been found that we have not yet found the real germ, and that as some of the more recent French investigators have shown it is not to be found in the tissues of the hair itself at all, that it must be looked for in the sheathes surrounding the hair in which the germ is to be found and not in the hair itself. I am not therefore prepared to say I consider this a case of typical alopecia areata becoming epidemic or showing itself to be contagious, but that we may be very well dealing with one of those rare instances of germ disease characterized by the ordinary surface appearance of alopecia areata, but by a difference in the gross appearances of the disease such as I first instanced, and, therefore, I think this would show that there is more than one disease which is characterized by alopecia in areas, and that I consider this as a probable example of that much rarer affection and different from ordinary alopecia areata in such respects.

Dr. JACOBI.—Did the new hairs come out white or black?

Dr. PUTNAM.—The new hairs did not come out white, but of the natural color in each child.

Clinical Memoranda.

EMPHYSEMA FOLLOWING ASPIRATION.

BY FRANCIS HUBER, M.D.,

New York.

So common is the operation of aspiration in pleural effusions (serous or purulent) that instances are not reported unless some complication occurs to draw particular attention to an individual case. Usually regarded as a harmless operation, its dangers and accidents are lost sight of. It has been well said: "Serious symptoms are so rare that

they ought not to have the least influence upon our estimate of this most benign and blessed operation." It is well to remember that accidents and complications may arise, and amongst the least frequent we may regard emphysema of the subcutaneous tissue. In two instances, both in children with purulent effusion, in whom aspiration was resorted to as a palliative measure, the usual precautions being observed, this accident occurred.

In the first case, a girl little over four years old, ill about three weeks, was aspirated, the medium-sized needle of a Dieulafoy instrument being introduced; about ten ounces of pus were slowly drawn off without causing any unpleasant symptoms. The stop-cock was now turned off and the needle quickly removed, a piece of adhesive plaster placed over the puncture. Almost immediately a slight emphysema, which quickly increased, until the entire lateral aspect of the chest wall was involved, was noticed. Dr. Denhard, who fortunately was present, compressed the thoracic walls, particularly over the site of the puncture, and in this way controlled the further escape of air into the subcutaneous tissue until the necessary preparation to incise and drain the pleural cavity were completed. A free incision having been made, and a large drainage-tube inserted, the air no longer entered the connective tissue, and the following day at the change of the dressing the emphysema had entirely disappeared. The case recovered without any further complication.

In case No. 2, female, aged thirty months, aspiration was performed about the twentieth day of the illness. About eight ounces of pus slowly removed, and needle quickly withdrawn, adhesive plaster over puncture. The pus was thick, flowed readily through the medium-size aspirating needle; was not admixed with blood. Nothing abnormal noticed when child was left about half hour after the aspiration. At the next visit, on the following morning, extensive emphysema of the right side of the chest (superficial and deep) with emphysema of supra-clavicular region on both sides was found present. The skin over the right lateral and posterior aspect of thorax was

reddened and brawny, resembling a cellulitis. Auscultation revealed amphoric breathing, with metallic tinkling posteriorly.

Upon cross-questioning the family was told that about half an hour after we left, the child was suddenly taken with a choking spell, became black, and it was thought that it was about to die. Undoubtedly the pulmonary tissues gave way at this time leading to the emphysema, though the parents did not notice any swelling of the side or neck until their attention was called to it at the examination.

I would add that in the first case the inroad of air, followed immediately upon the withdrawal of the needle and the noise of the air entering the cellular tissue was plainly audible, and of a flapping character. The same afternoon free incision and drainage was practiced in the second case in the eighth intercostal space below angle of scapula. The tissue was infiltrated, swollen and brawny. Distance from integument to pleura nearly one-and-one-half inches. The various planes of tissue were infiltrated with air and the seat of an intensely unhealthy inflammation.

Two large drainage-tubes were inserted and dressings applied. The emphysema of the cervical region, as well as that laterally, disappeared in the course of a few days. A small abscess appeared in the cervical region on the right side; the skin and tissues of the dorsal region became sloughy. Diarrhœa occurred, thrush upon mucous membrane of mouth and pharynx, and in spite of free stimulation and tonic treatment, death from exhaustion and sepsis occurred on the eighth day after the operation. With the experience obtained from this case, were I confronted with a similar, I should certainly advise a practical multiple incision through the infiltrated tissue of the dorsal region, in addition to drainage of the pleura.

The exact mechanism of the production of the traumatic emphysema in the cases reported above is not quite clear. Some air vesicles had undoubtedly been ruptured, and the pulmonary pleura been torn, allowing the escape of air into the pleural cavity. The opening was probably

valvular in character, permitting the air to enter the sac; with each act of respiration more air being forced in the pressure of the confined air became greater, and the excess seeking an exit found such at the spot where the aspirating needle had pierced the costal pleura, thus giving rise to the emphysema in the connective tissue.

The lung has frequently been perforated by fine needles without any deleterious results. I have in a few instances in cases of thickened pleura or slowly resolving pneumonia, punctured and drawn off a hypodermic syringeful of blood with advantage.

Puncture of the lung with aspirating needle has been reported by Dieulafoy, Morolte, and Donaldson. In some a little cough followed, in others no untoward effects were noted. Sometimes a pneumothorax resulted, which, however, disappeared in a few days. In a personal case the cough was followed by the expectoration of a little blood. A fatal case was reported a few years ago as having resulted in one of the city hospitals.

I do not think that in the two cases reported the lung was injured by the aspirating needle. The needle did not encounter any resistance, the flow of pus was free, and there was no admixture of air or blood in the fluid removed. I am forced to attribute the solution in continuity of the pulmonary tissue either to rupture of the air vesicles and pleura in consequence of the removal of the fluid and the giving way of a weakened spot, or perhaps to the existence of a bronchial pleura fistula induced by pus seeking an exit through the bronchi.

The result will depend in no small measure upon the judgment exercised in the selection of the proper tube. A loosely fitting tube, one that can be easily expelled in case of obstruction below it should *always* be selected. The attendant should be instructed to invert the patient and facilitate its expulsion by shaking the patient, or by crowding it out by pressure upon the trachea below the tube, in case of emergency.

The tube should always be extracted when there is evidence of membrane below it. The expulsive cough that

follows will expel a membranous cast in the great majority of cases. Many lives will be saved by promptly removing the tube when danger of obstruction threatens.

Careful nursing, forced feeding in the inclined position, and the faithful continuance of treatment after the operation, will have an important bearing on the result. The continuous use of the steam atomizer, the internal administration of iron and bichloride of mercury in full and frequent doses, and the local use of peroxide of hydrogen and bichloride of mercury by means of the hand atomizer are believed to be most important methods of treatment.

CONGENITAL DISLOCATION AT THE HIP: NOTES ON THREE CASES.

BY JOHN RIDLON, M.D.,

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CONGENITAL dislocation at the hip-joint is a condition sufficiently rarely met with to excuse a failure to diagnose it by the family physician, and sufficiently little understood by the rank and file of the profession to warrant the report of the following cases :

CASE I.—Female, two-and-a-half years old, of good heredity, well-nourished and healthy, has always walked in a peculiar manner. There has been no evidence of pain, and the family physician, an uncle of the child and a very distinguished man, while recognizing that there was something wrong at the hips had been unable to make out the nature of the disability, and admitted even that he did not know which hip was the affected one. On being stripped the child shows prominent hips both equally so, lordosis, an unusually broad perinæum, and toes turned out more than is usual in a child. The walk is waddling. All motions at the hip-joints are normally free except inward rotation and abduction of the thigh. On outward rotation the head of the femur can be felt to rise under the gluteal muscles. A line drawn across the buttock from the tuberosity of the ischium to the anterior

superior spine of the ilium shows the great trochanter to be three-fourths inch higher than normal on each side.

CASE II.—Female, two years and two months old, healthy and of good heredity, has always walked lame,



Fig. I.

Fig. I.—(Case II.) Shows the tilted pelvis, the upper part of the thigh broadened laterally and flattened anteriorly. The small circle indicates the point anteriorly behind which the caput femoris can be felt.

but has never complained of pain. On being stripped the pelvis is seen tilted somewhat downward on the right

side, the upper part of the right thigh is broadened from side to side and somewhat flattened on the anterior aspect; the gluto-femoral crease is less well-marked than that of the opposite side. Lying at ease there is three-eighths



Fig. II.

Fig. II.—(Case II.) Shows the femur crowded upward to the full extent, the prominent great trochanter, and a certain degree of lordosis.

inch shortening of the right lower extremity, and the great trochanter is the same distance above a line drawn from the tuberosity of the ischium across the buttock to the anterior superior spine of the ilium; all movements at

the hip-joint are normally free in all directions, and there is no pain or discomfort on manipulation. Firm traction on the limb makes it equally long with that of the opposite side, and by firm pressure upward the shortening can be increased to three-fourths of an inch.



Fig. III.

Fig. III.—(Case II.) Shows the femur crowded upward to the full extent, and the lines indicate the relation between the great trochanter and the crest of the ilium on each side.

CASE III.—Female, two years and nine months old, healthy and of good heredity, parents not observing

people, has been under treatment for three months for hip disease of the *left* side. When first seen by the attending physician the patient limped, and he elicited a history of pain and restlessness in sleep. He found on examination that the left limb was apparently longer than the right (suggesting the first stage of hip disease), that the movements at this left hip-joint were less free than those of the opposite joint, and that there was more fulness in the region below the groin. The treatment consisted of almost continuous rest in bed, without any direct fixation or traction apparatus. The attending physician does not recognize any change in the condition since the first examination. On questioning by the consulting surgeon the mother says that the child has always limped, and is doubtful on the question of pain and restlessness at night. Examination now reveals a normal condition of things at the *left* hip, but on the *right* side the limb lies rotated outward, the anterior aspect of the thigh just below the groin is flattened, this extremity is three-fourths inch shorter than the opposite, the great trochanter is a like distance above a line drawn across the buttock from the tuberosity of the ischium to the anterior superior spine of the ilium; all movements at the joint except inward rotation and inward abduction are more free than normal; a part of the shortening can be overcome by firm traction on the limb, and when traction is relaxed and the thigh rotated inward the head of the bone can be felt to rise under the gluteal muscles.

The *diagnosis* of congenital dislocation consists in demonstrating the dislocation and in obtaining a history pointing to the existence of the condition from birth. In unilateral dislocation the lordosis, broad perinæum and waddling gait of bilateral dislocation are not especially noticeable, but to compensate we have the normal hip on the opposite side with which to make comparison. Pain, tenderness and muscular spasm restricting motion characteristic of chronic joint disease are absent; so also inability to execute certain movements, characteristic of infantile paralysis is not found. When actual difference in the lengths of the limbs is present in any case, the location of and the reason for such shortening should be decided by careful measurements. Unless the child be

very fat the location of a displaced caput femoris can be readily made out.

The *treatment* for genital dislocation at the hip has not been satisfactory. A few selected cases have been reported cured by treatment for long periods in bed with traction and lateral compression, and after a time with passive motion; but in the vast majority of cases the mechanical treatment has proved a failure. To succeed the child must be young, it must be possible to pull the head of the femur down so that it rests against the undeveloped acetabulum; the child must be one whose skin will bear the dressings and whose temper will bear the restraint continuously for from one to two years; the mother must give continuous and intelligent attention to all the details, and the surgeon must possess unlimited patience, untiring zeal, fertility of resource, and the absolute confidence of the family of the patient. That such a combination is seldom found is evidenced by the few cures that have been effected. Anything less always results in failure. Treatment by ambulatory apparatus from the beginning is delusive and useless. Of the various operative measures that have been advocated that of Hoffa, of Wurzburg, appears the most reasonable and has given the best results. It consists in cutting down upon the joint by an incision following the course of the fibres of the gluteal muscle when the thigh is flexed to a right angle; the shrunken and undeveloped acetabulum is scraped out to a size and depth sufficient to readily receive the head of the femur, all of the muscular attachments to the upper portion of the femur are cut, or at least enough to allow the head of the bone to be easily retained in the new acetabulum and to comfortably remain when the thigh has been straightened from its flexed position, and the wound is then closed by deep and superficial sutures, and the patient encased in plaster-of-Paris from toes to axilla.

CONVULSIONS IN CHILDREN DUE TO
INDIGESTION.

BY S. J. RADCLIFFE, A.M., M.D.,

Washington, D. C.

THERE are certain reflex phenomena manifested in infancy and early life by convulsive movements of a particular type, having a known cause and easily recognized, which seem to be entirely functional and leave behind no organic lesion, and yet as a rule are not sufficiently dwelt upon in medical literature. These attacks appear to be epileptiform, or eclamptic in character, in so far that they are sudden, and unconsciousness occurs accompanied by convulsions, sometimes tonic, sometimes clonic, and often foaming at the mouth, and perhaps biting of the tongue and lips, but unlike in this, that the epileptic seizure is chronic and repeating, and these are acute and may not occur again unless like conditions are presented. Usually also in epilepsy there is premonition or an aura may be looked for, while in these convulsions the attacks are always unheralded without previous warning, and often entirely unlooked for, making them all the more interesting in a clinical point of view, especially as relates to the important aspect of differentiating the two affections. The type of these convulsions, or their duration, seem to bear no unvarying relation to the previous condition of the child, but they usually appear to occur under like surroundings and circumstances, and to be governed by the same factors as to cause, and the same therapeutics as to results.

These convulsions develop principally in infancy and early childhood, are of frequent occurrence, and always cause great alarm to their parents and much anxiety to the physician. They occur ordinarily, as said, suddenly, at uncertain periods, seem frequently to come on without premonition or plausible cause. The summons to them is always urgent, and when seen the case demands rapid judgment and immediate action. Generally the subject

of these convulsions embrace those ages of infancy and early life from about ten months to four years of age. If they occur in infancy, they are perhaps bottle fed, though well nourished, or if older, they may be hearty, well fed and usually healthy children, whose parents may indulge in all kinds of tempting and sweet things, place them at the table at meal times and allow them to partake of such food as is provided for the adult. Members of the family allow them to eat between meals and late at night, and boastingly observe how well they eat, and how little trouble they have with their diet. Or the parents may be very strict in this regard, careful of its diet, and discipline the child for any imprudence in eating, and yet the child may obtain something to cause the convulsion from another child, from a nurse or a kind neighbor, or clandestinely. They occur also at the time of life when the child has not learned or fails to masticate his food well. It is a common thing with little children to "bolt" their food without properly mixing, in large pieces, and in a condition unfit for digestion, especially at that period when the eruption of the teeth has not fully taken place and they have insufficient grinding surface.

The causes of these convulsive attacks can, therefore, generally speaking, be readily and easily accounted for, or to a reasonable certainty, and those who have had experience in treating sudden convulsive seizures in little children can, when called, decide in his mind at once, and without hesitation the conditions present, and usually inaugurate immediately his plan of treatment for the relief of the patient.

Having in mind the fact that the cerebro-spinal nervous system is predominant, and the spinal predominates over the cerebral in early childhood, and is in proportion more largely developed than in the adult, which in itself makes them prone, or is a predisposing cause of these attacks, that they are consequently easily convulsed from slight causes, such as shock, fright, dread, pain from external injury, or from irritation of some portion of the gastro-enteric tract, as from intestinal worms, indigestible

food, and the like, and leaving out of view those secondary attacks—which are more properly symptomatic and give a history of some other disease or lesion either constitutional or organic—by closely analyzing the condition present, a correct diagnosis can usually be arrived at in most of these cases.

The true pathological condition in such convulsive attacks seem to be due and is due, no doubt, to direct irritation of some portion of the sympathetic nerve through the solar plexus, which has communication with the right pneumogastric nerve, and the gastric pluxus, which directly supplies the stomach and is in communication with the left pneumogastric, and act through their connections with the ganglia and spinal system of nerves, and hence the phenomena observed are entirely reflex in their character and arise from a specific cause.

If, therefore, we can arrive at the cause of the irritation we are at once placed in a position to correctly interpret and remedy the condition present, and prevent further danger which may be threatening and imminent, for no matter how simple and plainly recognized the case may appear, there is always a certain amount of danger impending, though it may not be manifested immediately.

Interrogation of those present will not generally reward us for the trouble, as the mother or nurse or attendant will assure you most likely emphatically that the child has eaten nothing unusual or different from its regular or customary diet, and we may not be able in this way to elicit the information desired. But a general and persistent cross-questioning in a quiet way will in the end bring out that the child, if an infant, has only sucked a sponge cake or some similar simple thing to keep it quiet, as happened in the following case:

CASE.—Infant female, æt. ten months, plump and well nourished, was brought to my office by the nurse in a convulsive state. I directed the child to be taken home, and I followed immediately. It had been out for an airing and kept beyond its feeding time, and in order to pacify it, the nurse, as she informed me, had given it

"only a small sponge cake" to suck, with the result as stated. The infant was pale, pulse rapid and small, surface cool, was insensible to outward impressions, teeth grinding and clenched, eyes rolled up, the muscles of the face twitched, and there was occasionally a general tremor, extension of the head backwards, and inward contraction of the thumbs. The infant was put in a hot mustard bath, and an asafœtida injection administered, and an attempt was made to give it medicine by the mouth, which proved difficult on account of its inability to swallow and the tightly clenched teeth. A teaspoonful, drop by drop, of syrup of ipecacuanha was finally got down in a mechanical way, by introducing it far back in the cheek and allowing it to find its way to the back part of the pharynx, and down the œsophagus. It was not for two hours, and not until another teaspoonful of ipecacuanha was given that the stomach acted, when free emesis brought up its contents which comprised the cake, and what looked like apple in an entirely undigested condition. The child was at once relieved of the spasm, went to sleep, slept two or three hours, and next day was bright, but it was several days before it had regained its loss, or if the child is older it may have been given a hearty meal of meat, including fat pork, as is illustrated by the following case:

CASE.—C. B., boy, æt. two years and ten months, a fine healthy child, of good history, and rarely sick, eruption of temporary teeth perfect. The call was urgent, and as usual the emergency great. I found the child pale, comatose, with quick, feeble pulse, cool surface, eyes fixed, and staring, muscles of the face twitching more on the right side drawing the mouth to the right, some general tremor, but no persistent spasm of the extremities.

I questioned the mother, but she denied having given the child anything to eat out of the usual way. I had some doubts as to the correctness of her statement, and believing it was a case of overfeeding gave him half an ounce of syrup of ipecacuanha which was at hand, and which I got down with some difficulty, and in ten minutes two drachms more with warm mustard water which produced in a short time copious vomiting bringing up large masses of milk coagula, meat and other undigested food. The child was entirely relieved, and in twenty-four hours was as well as usual. I was called to see this child three months after this first attack and found him in a worse condition with the spasm more decided, the hands clenching, and foam-

ing at the mouth. The mother made the usual denials, but notwithstanding, I managed to get down an emetic as before, and an enema of potassium bromide, and when the stomach began to empty itself I was surprised to find in the mass vomited, large pieces of fat pork, wholly undigested, and in the condition he had swallowed it. The child, as in his former attack, soon rallied, was relieved of the convulsions, and went to sleep, and leaving him then with some further directions, I found him bright, and apparently in his usual condition next day. Or another case.

CASE.—Male, æt. three years and six months, history good. Found him in an insensible state, unimpressible, eyes rolled up, lids in motion, cornea insensible, face twitching, teeth grinding, foaming at mouth, general convulsive tremor, pulse quick and small, and surface of body cool. The child had been in exceptional health up to time of seizure, was taken suddenly after a hearty meal, and hence the diagnosis seemed plain and simple. An emetic of five grains of zinc sulphate and powdered ipecacuanha was administered with the result that the stomach was completely evacuated—the matter vomited containing a quantity of meat half masticated and vegetables with other undigested food. The spasm relaxed almost immediately, he went off in a quiet sleep, and in twenty-four hours with a few doses of potassium bromide he was apparently as well as ever.

Still another case was that of a child, male, æt. three years, of good history, previously in good health, in which the convulsions were produced by eating buckwheat cakes for breakfast. In this case the mother acknowledged this fact which gave material aid in arriving at a diagnosis. An emetic as in the other cases entirely relieved him with no bad effects remaining.

One other case was that of a fat, hearty, well-nourished female child sixteen months old, in which it was difficult to determine the cause of the convulsions. I found her in the same spasmodic, comatose or insensible condition, except the coma was more profound, the child more insensible to impressions, and the spasms more severe. The muscles of the face were continuously in motion, and the body would stiffen out with a posterior curvature, so constricting the chest as to cause fears lest its continuance might seriously interfere with respiration, or perhaps

arrest it altogether. Indeed, several times the child seemed to have ceased to breathe, so feeble was its respiration. The child could not swallow, nothing could be introduced between the teeth without violence, consequently it was useless to attempt to give an emetic by the mouth, and it was not thought advisable to risk the hypodermic injection of apomorphine in its then precarious condition. It was put in hot baths, enemata of oil and soap-suds and asafoetida were given, and as much bromide of potassium administered as could trickle down the throat in the short intervals of the spasms. This caused the convulsions after some two hours to mitigate in a measure, when a dose of zinc sulphate and powdered ipecacuanha was given. In the course of a short time it had a free operation from the bowels, followed by a pretty copious emesis containing milk coagula and what seemed to be macerated orange peel. It was completely exhausted after this, was perfectly limp, closed its eyes, fell off to sleep, and slept continuously for several hours, but so feeble was the respiration and pulse that it seemed scarcely alive. It was not bright for several days though it rallied, little by little, and it was two months or more before it regained ordinary health again. Partial paralysis or paresis of the left lower extremity with feeble muscular power and indisposition to stand or walk were the results of the attack, showing that the severe irritation of the peripheral nerves had through the malar tract caused serious disturbance of the cerebral centres.

All these cases have the same tendencies and the same results. They are rarely fatal, leave generally no material or permanent disability, and are amenable to prompt treatment and immediate relief. They are not connected with organic brain lesions, and whatever cerebral symptoms may be manifested during the attack are referable rather to the peripheral irritation occasioned than to any primary disturbance of the nervous centres. There can be no doubt, however, that a continuance of such irritation prolonged for an indefinite period, would result in permanent lesion, or perhaps death, of the subject. The delicate structure of children could not stand such a strain upon their nervous and physical organization without seriously impairing or interfering with their functional or vital existence, and according to the best practice, the

chances for a successful issue are in proportion to the promptness with which the exciting cause is removed.

It is a difficult matter often to determine the true condition presented in nervous disorders in children, and any discussion of symptoms, especially those relating to convulsions, frequently lead to doubtful premises, to the border ground, where uncertainty grows more and more apparent in our efforts to discriminate between functional and organic lesions. Such things are possible and often crowned with success, and he who has the faculty of diagnosing these cases correctly is the most successful practitioner.

A FEW PRACTICAL REMARKS UPON THE COMMONER AFFECTIONS OF THE NOSE AND PHARYNX OF CHILDREN.*

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DISEASES of the nose and pharynx in children deserve more attention from the general practitioner than they frequently receive, and the importance of recognizing affections of these parts is the excuse for these few remarks.

The many conditions depending upon disturbances of the lining and other structures of the nose and pharynx are sufficient to make the subject one of importance. In fact it seems as if there were more disturbances produced by diseased conditions of the nose and pharynx in children than in older subjects.

If affections in these parts in children have not received more attention than they deserve, it need not be surprising when we consider how difficult it often is to make an adequate and satisfactory examination of the nose and throat in young children.

* Read before the Metropolitan Medical Society, February 10, 1892.

Disturbances of the nose and pharynx may make their appearance very early in life, as witness the condition formerly called snuffles, frequently one of the earliest manifestations of inherited syphilis, and so with other affections of the nose and throat ; we may have diseased conditions of these parts at any period of child life. They come on primarily, or they may be secondary to some other affection, or in turn they may be a factor in the production of some local condition or a general one. As a factor I do not wish to be understood as stating that they are a cause of any general disease ; that they often cause local disturbances is already well known.

It appears that in the majority of cases that the posterior part of the nares and the upper part of the pharynx are the parts most affected. Conditions of the anterior part of the nose seen in those who have reached puberty and older, are not so frequently met with in young children, for instance, the large hypertrophies, deflected septa and nasal polypi.

Now, whilst hypertrophies of the turbinated tissues and deflected septa are seen in children from six or seven to ten and twelve years, yet the just mentioned conditions do not seem to be so numerous or as extensive as in older children, and as for polypi in children they are very rarely observed, occasionally we have reports of a polypus in a child. Morrell Makenzie up to within a few years ago had not seen a polypus in the nose of a person under sixteen years. Affections of the lower part of the pharynx are not so numerous in children as in adults. I do not refer to affections of the tonsils involving the pharynx, but affections of the pharynx alone, so that it seems in a large number of cases examined that the most frequent seat of the trouble lies between the tonsil below and the posterior part of the nose above.

Obstruction, which is so prominent a feature in catarrhal affections of adults, plays an important rôle in catarrhal affections of childhood. Obstruction may exist in the nose, naso-pharynx or pharynx, or it may be present in all three situations. When it exists in the nose, which

it rarely does alone in young children, it may be caused by the presence of foreign bodies, swelling of the turbinated bodies, or the cartilaginous septum the latter as a result of traumatism, or there may be congestion of the entire mucous membrane lining the nose. The congestion of the turbinated bodies is often the result of obstruction elsewhere, generally the naso-pharynx. Adhesions between the outer wall of the nose and cartilaginous septum is a result seen in noses of a small calibre. This coalescence of septum and the outer wall I judge to be a result of an acute purulent rhinitis of frequent repetition or a chronic process where the constant contact of opposite surfaces causes an absorption of the mucous membrane, thereby bringing about the synechiæ. A previous diphtheritic rhinitis followed by ulceration might also have produced this result. It may also be well to state here that the septum on the side the adhesion or adhesions exists, is more largely developed or somewhat deflected toward the side of adhesion. However, it is that part of the upper respiratory tract known as the naso-pharynx, that is most affected with obstruction. The knowledge of obstruction in the naso-pharynx in children is a matter of recent years and unlike the discovery of some new bacteria or therapeutic remedy it took some time before this was recognized, even by specialists. As late as five years ago a well-known throat specialist stated at a meeting of the American Laryngological Society, held at the Academy of Medicine in this city, in discussing a paper on the subject of "Adenoid Vegetations," by Dr. F. Hooper, of Boston, that he did not have an opportunity of recognizing adenoid vegetations in his New York practice and thought it must be a product particularly common to Boston. As these so-called adenoid vegetations are the commonest cause of obstruction in the naso-pharynx I will dismiss this part of the subject for the present. The obstruction in general not only hinders normal breathing, but is accompanied with an increased flow of mucus and also hinders the escape of the secretions, this, perhaps, is the most prominent feature of the obstruction

for which advice is sought. There is also a want of resonance to the speech ; this occurs oftener with children than adults. Frequent attacks of bronchitis are also apt to occur in these young subjects. There is also a cough for which no laryngeal or pulmonary cause can be found and usually occurs whilst the patient is in the recumbent position. This is caused by the secretion coming down from the upper pharynx, which, during consciousness is swallowed, but during sleep irritation of the epiglottis is induced by the secretion. Noisy breathing with restless sleep is another very common result of obstruction. Loss of appetite and general irritability, impoverished blood, facial chorea, nocturnal incontinence of urine, retardation of mental development, affections of the eye and ear and even hernia are some of the disturbances said to be caused by obstructive catarrh of the nose and pharynx ; there are besides a number of other disturbances which different observers have reported. Whilst making allowances for exaggeration and imperfect and incorrect observations, there is no doubt as to a great deal of truth in these observations.

The ætiology of this subject is obscure. Heredity and environment have some influence in this matter but I will not attempt to discuss this part of the subject in these few remarks. A word about injuries to the nose. Injuries to the nose though apparently not severe at the time of infliction, are said to be responsible for many deflections of the nasal septa, but deflections are oftener observed in adolescents and adults, so that an injury inflicted during childhood if not very severe, the results are apparently not observed until some later period, so it would appear as if deflection was a progressive process when caused by injury.

Perhaps, the most important pathological condition we have to deal with in connection with this subject is the adenoid hypertrophy of Luscka's tonsil. Now, whilst adenoid hypertrophy in the vault of the pharynx is observed in adults, yet there is no doubt of the enormous preponderance of these cases in children. The development of

this structure varies in many cases. In some we have an early formation occupying but a limited extent of the pharyngeal vault, in others, the extent of the structure is more widespread, occupying the vault in all directions, crowding into the posterior nares, etc. On the other hand the mass may not be so large, but the naso-pharyngeal space may be less roomy, so that relatively we have the same result as with a roomier space and larger mass. It seems as if this tissue commenced in early child-life to form and goes on in its development until some period late in child-life, or even later, when it ceases to grow ; it then takes on atrophy or undergoes a process of condensation. If it does not undergo any change it at least ceases to grow so that as the space develops with the growth of the body the adenoid mass ceases to make its presence felt to the same degree, but in the meantime irreparable damage may have been done particularly to the ears, besides the other disturbances caused.

As we proceed lower down in the pharynx we encounter those two bodies that have long been the cause for physiological speculation, but to the clinician they have a more practical interest, perhaps there are no affections so common as those involving the tonsils; comparatively few escape a single attack of tonsillar inflammation, whilst many are victims innumerable times either from mild or severe attacks. One who sees much of inflammation of the tonsils in its many phases and under various conditions finds much of interest.

We do not as often see the same manifestations of inflammation of the tonsils in children as in older persons. In the majority of cases we have either a simple inflammation accompanied by swelling or in addition an exudation. Abscesses do not occur with the same frequency in children as in older subjects, nor do we have the filling of the lacunar with cheesy formation, so that taking it all in all, with the exception of those having diphtheria, I do not think that the effects of tonsillar inflammation *per se* are generally so severe in a child as in an older subject. However, the tonsil either acutely or chronically enlarged

may cause secondary disturbances, such as subacute, acute and chronic inflammation of the middle ear, interference with deglutition, nasal respiration and speech, irritation of the epiglottis, adenitis, etc. The manner in which disturbances are caused by affections of the nose and pharynx is evidently not due to any one process. Affections of the ear may be caused by direct contact through encroachment of peri-tonsillar tissue inducing swelling of the mouth of the Eustachian tube interfering with tympanic ventilation and circulation, thereby causing increased swelling of the middle ear with all of its attendant consequences. Mouth breathing may be the cause of bronchial catarrh. Irritation of a sensitive part sets up a reflex disturbance. Therefore the manner of giving rise to disturbance of other parts through affections of the nose and pharynx is manifold and not limited to any one cause.

The large parenchymatous tonsil or the smaller and flatter one with large follicles are a constant menace to a child's health, they frequently co-exist with adenoid vegetations, and once recognized no time should be lost in getting rid of them. Of course this may be better in theory than in practice, but the necessity of doing this has become generally recognized. In the present state of our knowledge regarding bacteria as a principal factor in disease, and their presence in the atmosphere as well as in water, and other bodies, it is very apparent when the first manifestations of scarlet fever, diphtheria, measles and whooping-cough are often seen in the nose and pharynx, that whilst the nose and throat affections in these diseases are local evidences of constitutional affection, yet from practical observation I am convinced that it is through the medium of the nose and throat not being in a healthy state that the above-mentioned diseases are introduced into the blood in many cases. Nor is this surprising; is not the enlarged or ragged tonsil with its unhealthy secretion an excellent soil for the propagation or culture of disease germs, or is the blood that circulates through such structures in a healthy condition so as to

lessen its power of resistance. Furthermore, were the above theory incorrect, yet we know too well how these abnormal structures complicate the just mentioned diseases. Enlarged tonsils makes swallowing difficult, interferes with breathing and further adds to the febrile disturbance. The adenoid growths by reason of their own presence, and the congestions and swellings in the nose as a secondary result, or where the nasal congestions and swellings exist primarily, make the mucous membrane a ready soil for the extension of the infection of diphtheria. There are a number of other conditions of the nose and pharynx that might have been considered, or even the conditions, mentioned may have been dwelt upon at greater length but the main object of these few remarks was to consider abnormal conditions of the nose and pharynx that act as a cause for the production of other troubles, rather than those pathological states whose influence is limited in a great measure to the nose and pharynx alone.

Clinical Lecture.

EARLY SYMPTOMS OF HIP DISEASE AND ÆTIOLOGY OF HIP DISEASE.—TREATMENT OF ABSCESS IN HIP DISEASE.*

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GENTLEMEN:—Among the earliest symptoms of the invasion of the hip-joint is a rigidity of the muscles of the thigh which is produced by the child's efforts to achieve an immobilization of the joint. The child realizes that every motion of the hip produces pain, and hence instinctively produces this involuntary action of the muscles.

* Delivered at the Jefferson Medical College Hospital.

The methods of recognizing fixation of the joint are by watching the motion of the pelvis in the first place. By observing the crest of the ilium you may see the characteristic motion, while a still more delicate manipulation will show this fixation more clearly. If we move the healthy limb, the genitalia remain in the normal position, but if the affected side is moved, the genitalia are moved also in a direction corresponding to the movement of the leg on account of the rigidity of all of the muscles on that side of the body. Still another sign is the disappearance of the ileo-femoral fold or crease. The cause of the obliteration of this crease is muscular action together with a change in the position of the limb. The leg is drawn forward, and in this position the line is effaced. We can learn more of this disease by not touching the limb, but by noticing the motions of the child. If we ask the child to turn over you will observe that it will be done by the sound limb entirely, while the motions of the affected leg are guarded with supreme care. The "shoe and stocking" position is a capital way of making our diagnosis in the incipient stage. This is the position in which the ankle of one side is thrown across the knee of the opposite side. In doing this there is necessarily rotation of the leg. The child, if diseased, will be unable to throw the limb of the affected side in this position. If you ask her how she puts on her shoe she will say she does it by stooping down and putting it on at her side in such a position that rotation or any movement of the hip-joint will be avoided. There may or may not at this time be a swelling of the joint, usually not, because there is not apt to be any effusion or accumulation of pus at this stage. Another symptom, though not an infallible one, is pain in the knee-joint. Those who have studied their anatomy well, will remember that a branch of the obturator nerve runs to the hip-joint, and other branches extend to the knee-joint. Inflammation or irritation in one portion of this nerve will cause pain in other portions of the same nerve. Thus, as hip disease will give rise to pain in the region of the knee, so will pressure on the ulnar nerve produce tingling in the

fingers more than any sensation at the point of pressure beside the olecranon process. Still it must be borne in mind that disease of a joint will give rise to pain in that joint itself. Over and over again has actual disease of the knee-joint been ignored because the physician believed that pain in the knee must mean hip-joint disease, and again has the knee been treated as the site of the disease when the pain present at that point only indicated a lesion elsewhere.

In hip cases, the mother will also call your attention to the fact that the child has night pains, and cries out in her sleep. During the night and more especially the early hours of sleep when the voluntary control of the muscles is overcome, they become relaxed, and the diseased bone is impinged upon by some motion of the child. As a result a muscular spasm occurs to recover immobility and this gives rise to severe pain, the child waking with a scream. One point more I wish to impress upon you right here. In making your diagnosis *do not hammer upon the knee or foot in order to elicit pain in the hip-joint*. The reason for this injunction is plain. There exists an *ostitis* or *synovitis* here, and any traumatism will increase the intensity of the inflammatory action. I would emphasize this point most strongly, because I am convinced that it is a prominent factor in increasing the gravity of the disease. If one of you had a boil upon the nose I do not think you would ask some friend to pinch it in order that you might find out whether it hurt or not, and that you might be sure that pain could be produced. On the same principle do not hammer on a child's foot or knee to see whether it would give pain in a diseased hip-joint, but rather make all of the necessary movements in manipulation with the utmost gentleness and caution.

Causes of Hip Disease.—Before considering the treatment of this disease, it is necessary to speak of the subject of the causation. We may at the outset lay it down as a positive fact that in the great majority of instances that it is a tubercular disease, just as much so as consumption. It is analogous in many respects to phthisis, in

that it is an inherited disease which has been lighted up by some traumatism. Among the many causes which have been assigned are falls, sprains, inadequate clothing, exposure to cold and dampness. These of themselves, however, would not produce such a terrible disease unless some predisposing cause existed in the form of a system full of tubercular deposits ready to be lighted up into inflammatory action. It is a well-known truth, that having a fact in hand we invariably ascertain to the best of our ability a known cause. If a child presents this condition, the mother will always ascribe it to some cause, which in itself is usually a trivial one. How many children suffer falls and blows with no such disastrous result following! The fact that, as a rule, there is a tuberculous disease of the bone, must not exclude from our mind that there are a number of cases where the disease occurs without any tubercular disease. It is a great comfort to the family to know that the trouble may result without the presence of this hereditary factor. We must allow a small margin to cover the comforting cases. From the fact that this is a tuberculous disease, it must be viewed in an entirely different light from an acute synovitis or ostitis occurring elsewhere. We must view a manifested tubercular deposit as a malignant disease, I mean that the tendency is to destruction. A malignant tumor is one which menaces the patient's life; a tubercular deposit is malignant because it has a tendency to a destruction of the surrounding tissues, not only the bone, but the soft tissues as well. It is not malignant in the view that it tends to the destruction of the patient's life, and in this it differs from malignant tumors.

As to the sites of the disease. Having settled in our minds that it exists in the head of the bone, I must not overlook the fact that it does not confine itself to this point. Existing originally in the head, it is apt to pass on to the acetabulum. That there is a conjoined acetabular origin I am not quite prepared to say, but that acetabular disease does become associated we all know. The head being removed it frequently leaves in the acetabulum a

tuberculous deposit which relights the inflammation and continues the old condition. Now the question will be asked, such being the case, why not resort at once to excision of the tuberculous deposit? The reason is that in a certain number of cases nature has resorted to her own expedients to eradicate the disease by absorption. In some cases the cure has gone on until the patient has a very good leg.

Acting upon this determination of nature to absorb the affecting deposit, there has ensued a plan of treatment known as the conservative plan, which aims at immobilization for a period covering the time of the presence of inflammatory action. The results accomplished by a persistent attention to this plan of procedure prove far more satisfactory than those obtained by recourse to surgical procedure. The shortening is less and the general usefulness is better in every way, provided the case is given the full benefit of this plan sufficiently early to be of service, and it be persisted in with proper judgment for an adequate length of time.

Conservative Plan of Treatment.—To illustrate the method of carrying out the conservative plan of treatment, I will bring before you the boy upon whom I two weeks ago performed infra-trochanteric osteotomy for the relief of deformity following hip disease. The method of immobilization used in this case is applicable to the treatment of the disease itself in its incipency. Incidentally, I may say that his temperature on the day following the operation was 100° and since that time has ranged from 98° to $99\frac{2}{5}^{\circ}$ indicating an entire absence of any inflammatory disturbance. I left the dressing intact for a period of ten days, and when I removed it it was perfectly clean and healthy. The great convenience of using the wire breeches is, that we can have the patient thoroughly immobile and yet have perfect access to every part. The wound is perfectly aseptic. You will observe that the shortening will amount to not more than one inch. By means of the elevation of the breeches upon stools or benches placed across an ordinary bed we can pass the bed-pan, and keep the

patient in a good sanitary condition without moving the hip. Extension is obtained here by means of a rubber band applied on the side and attached to the foot-piece. By means of scales we can test exactly the amount of weight applied. In this case very favorable and satisfactory results have been obtained.

Treatment of Abscess in Hip Disease.—You will recall the little girl with the leg so flexed that it was with considerable difficulty that we brought her limb down in a horizontal position. You will remember, also, that I called attention to a swelling in the hip-joint. Her limb has been kept in a rigid position since. Her temperature rose on the evening of the 25th to $101\frac{1}{5}^{\circ}$, and our attention was called to the fact that something was wrong. Immediately we examined her carefully and found not a single, but multiple abscesses; one in the groin of the affected side, one on the side high up, and one posterior on the spinal column. These abscesses when opened gave exit to the characteristic tubercular pus, and the peculiar granulations pathognomonic of these tubercular cases followed. Her temperature fell to $99\frac{1}{5}^{\circ}$ and with but occasional slight elevations has since remained normal. This abscess on the back is not connected with caries of the vertebræ but is purely a tubercular deposit in the soft tissues which is breaking down. If there had been necrosis of the hip we would have removed the diseased bone at once. We have treated these abscesses as follows: First, they were washed out thoroughly with peroxide of hydrogen by means of which combustion of diseased tissue takes place. Following this is the use of the bichloride of mercury solution, 1 to 2000, which puts the parts in a chemically antiseptic condition. Then, more important than all the rest, is the use of iodoform, which is preëminently of all the germicides the one which acts advantageously in the treatment of diseases due to the bacillus tuberculosis. If this is dusted over, very little will reach the crevices where the germs lie. If we use the ethereal solution we are apt to have iodoform narcosis, and as well necrosis of tissues with which it comes in contact. Dr. Nicholas Senn advises the

use of a ten per cent. emulsion of iodoform in olive oil, the advantage of which lies in the fact that a suspension of iodoform takes place so that we can have a definite quantity present; it fills all the crevices and the excess runs off, the iodoform thus coming in contact with the germs. Iodoform has a very disagreeable odor and attempts have been made to substitute iodol for it, but I am not satisfied with it, and I therefore forget the odor in the decidedly great advantage it possesses as a germicide for bacilli tuberculosi.

Favorable Result of Conservatism in Hip Disease.—The little child which is now before you has been carefully treated since the incipient stage by my chief clinical assistant, Dr. J. P. Mann. She was kept in bed for the first six months, during which time extension, fixation, and immobilization was maintained. When the symptoms warranted it, the child was allowed to get up and around, but was not allowed to use the diseased joint. She has been wearing a high shoe upon the sound limb, and used crutches in order to thoroughly protect the diseased joint. The position assumed by the child must be noticed. Let us carefully examine the present condition by taking the sound limb first in order that we may have something to compare it with. I have no trouble in producing rotation on the sound side and showing you the entire absence of rotation upon the affected side. I will move the sound limb out or abduct it, asking you to notice the anterior superior spine of the ilium and the labia majora, and you will observe that they remain in a fixed position without the slightest indication of a change in their position showing that free motion of the head of the femur in acetabulum takes place. On the other side, I find there is an absence of motion of the joint as I rotate and abduct the limb. As I move the limb outwards you see that the mons veneris and the spine of the ilium move also. As the child turns over you can see how she guards her affected limb. Now looking at this patient you can see that the ileo-femoral crease is increased on the affected side and diminished on the well side. Hence, we cannot rely on this sign alone.

Now let us observe the difference in length of the legs, and I will have you observe that there is an enormous amount of fallacy existing in the manner making measurements of the asymmetry of a limb. The points selected are usually the fixed bony points, but the difficulty in finding these points is so great that much error is apt to result. I usually determine the point of the anterior superior spinous process of the ilium and the external malleolus, and marking them, take my measurements from them, but in doing this I must avoid the danger of slipping my finger upward owing to the extreme mobility of the skin over these bony prominences. The position of the legs and as well the body must be straight. The better way is to corroborate by measuring from the umbilicus as a fixed point and swinging the other end of the tape-measure from one malleolus to the other. In this way the measurements will be more accurate and the avoidance of error facilitated. The very best and most accurate method is that in which the patient is made to stand, and while standing, thin boards of accurate and known thickness are slipped under the foot of the short side until the pelvis is on a level with the floor. We can thus form an accurate idea as to the size of the sole required for the shoe.

I find in this case one of the most satisfactory results we could desire. There is a slight amount of rotation as I can feel by means of the great trochanter and the ischium, and there is also a slight amount of adduction and abduction. The limb is in a perfectly straight position, and that is what we wished to secure. I wish to show you now how a worse condition can be produced in such cases if care be not taken. If the limb is not maintained at right angles to the line of the pelvis when recovery takes place it may become ankylosed either bent outwards, or overlapping the other limb, the latter being one of the most serious deformities following hip-joint disease. Another mistake is to allow the child to lie in a bed which allows the limb to be flexed and thus thrown anterior to the body. As this child stands on the sound leg her affected limb hangs in the position of extension at right angles to the

axis of the pelvis. In this position she does not use her limb, but a little later, when we are positive beyond a doubt that the disease is entirely arrested, we shall put the high shoe upon the affected leg and allow her to go without crutches. The result obtained in this patient is one of which anyone may be satisfied, for although seen in the incipency the progress had been considerable, but was arrested without abscess, with a leg that will be a useful leg for locomotion.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Bates, (Bradford): Auto-Infection in Scarlatina. (*Brit. Med. Journ.*, 1892, i., 818.)

The patient was a girl, aged 19, who in the midst of convalescence from apparently typical scarlatina, complained of slight joint pains. On the eleventh day the fever and rash recurred; on the fourteenth day, smoky, albuminous urine with blood and casts were noted, and on the seventeenth erythema nodosum on the shins. On the twenty-first day the rash came out again more livid in color, the temperature fell, and after suppression of urine and appearance of œdema, hot-air baths established diuresis. The patient desquamated until the eightieth day. He was at a loss for an explanation except by auto-infection.

Jones, Hugh, (North Wales): Auto-Infection in Scarlatina. (*Brit. Med. Journ.*, 1892, i., 964.)

A little girl, aged four, was first seen on October 16, 1891. She had a temperature of 103° F., and the trunk and limbs were pretty generally covered with a typical scarlatinal rash. During the succeeding days the temperature came down, and all the other symptoms gradually disappeared. On October 22d the temperature was normal; appetite good; no trace of rash; but there were signs of incipient desquamation of the skin. The child remained practically well till October 26th, when she sickened again; the temperature went up to 104° F., and the greater part of the body was again covered with the same typical eruption of scarlet fever. The urine in this case remained normal in quantity, and not the least

smoky in appearance. This second attack ran just the same course as the first, and eventually terminated favorably. Desquamation then followed.

Turner, John B., (Philadelphia): **Successful Treatment of Membranous Croup without either Tracheotomy or Intubation.** (*Med. and Surg. Rep.*, 1892, lxvi., 412.)

He reports four cases, all of which recovered under the following line of treatment. First, ammonium chloride is given in syrupy mixture without water, thus:

R Ammonii chlorid..... 3i.
Syr. Solution. f. ʒii.

M. S.: Half a teaspoonful every two hours for a child one year old.

To allay spasm and give needed intervals of quiet, restful sleep, asafœtida is given by suppositories, thus:

R Asafœtidæ pulv..... gr. xvi.
Quinæ sulph..... gr. iv.
Codeinæ gr. ss.
Olei theobromæ gr. cxxx.
Ft. Suppos. No. viii.

M. S.: One every four hours.

There were no atomization used in these cases. In the discussion which followed before the Philadelphia County Medical Society,

Dr. EDWIN ROSENTHAL said that it seemed strange to him that such a disease as membranous croup should be so easily remedied by muriate of ammonia and asafœtida suppositories. In a series of some four hundred and twenty odd cases, which were not treated by intubation or tracheotomy, and in which the diagnosis is undoubted, but three recovered. In sixty-four cases that were intubated fully one-half died. Many of these cases had been previously treated by muriate of ammonium, and also by chloral, which is a better antispasmodic than asafœtida.

Dr. H. R. WHARTON.—Last year at the City Hospital forty-three per cent. of the tracheotomies recovered. Many cases of croup get well with the simple medicinal treatment; and while at times these very urgent cases will get better without operation, yet this is the exception. Within a year and a half death has occurred in five cases of croup, in which I was summoned to operate, before I could reach the patient. It is unwise in these urgent cases to postpone operation, for many cases of croup die suddenly.

Dr. NUTT had done intubation frequently for the last eight or ten years—seventeen successive cases—and out

of that number there had been only four deaths. He believes in early intubation.

Dr. JOHN B. ROBERTS said that the man who never operates is sometimes wrong, and the man who always operates is sometimes wrong. Eight or ten years ago he made up his mind to operate in all cases of diphtheria where there was dangerous difficulty in respiration. Tracheotomy was done over and over again, and although all the patients died, he never regretted the operation, because the relief of the patient was so great. Since intubation was introduced by O'Dwyer, he has adopted that as the primary operation, and reserved tracheotomy for a later procedure.

Dr. J. B. DEEVER said that both intubation and tracheotomy had accomplished much in the treatment of croup. After either operation the death will not be easy, if the disease extends further down. He considers that there is a difference between croup and diphtheria, one being a local and the other a constitutional disease. He believes strongly in the use of mercury in these cases.

Dr. G. BETTON MASSEY had used for ten years insufflation of powdered sulphite of sodium in those cases of diphtheritic sore throat with general systemic disturbance. In all these cases the membrane disappeared in from twelve to twenty-four hours, and in these ten years he did not see a bad case of diphtheria.

Dr. ROSENTHAL used the peroxide of hydrogen locally, and advocated the free use of mercury and of stimulants. He wished to be placed on record against the indiscriminate use of emetics in membranous laryngitis. He has yet to see one case benefited by their use.

Dr. DA COSTA called attention to the differential diagnosis between diphtheria and croup.

Greig, N. J., (Toronto): Treatment of Diphtheria. (*Canadian Pract.*, Toronto, 1892, xvii., 74.)

Intelligent treatment is based upon these facts: 1. The bacilli do not enter into the tissues and circulate through the blood, but live in the mucous membrane. 2. The action of the bacilli on the mucous membrane results in the production of a very powerful toxic substance which is absorbed and circulated through the system. This is the agent which produces the most important of the symptoms and sequelæ of the disease. 3. In this disease many other varieties of bacteria are found in the throat, the absorption of which may cause several of the complications and assist to produce sepsis. 4. Large

numbers of the bacilli are found in the external layers of the membrane, while none are found in the deeper layers or subjacent tissue. 5. A lesion of the mucous membrane, while not necessary for an attack of diphtheria, strongly predisposes to it.

A variety of causes will produce membrane in the throat besides the Klebs-Löffler bacillus, and the only positive method of diagnosis is by means of the microscope. In many cases of diphtheria the knee-jerk is absent.

The object of treatment must be twofold: 1. Support the strength by foods and stimulating medicine. If necessary resort to rectal enemata. In medicine, iron is given more than any other drug. If any sign of weakness occurs in the pulse, in addition to the whiskey, use ammon. carb., digitalis or turpentine. Perchloride of mercury is contra-indicated by the fact that it is a heart depressant. 2. To prevent the production and the absorption of the poison produced by the bacillus, and the absorption of the other forms of bacteria. This is done by local antiseptic treatment; and the best agent for the latter purpose is hydrogen peroxide. Its chief use is in ridding the throat of the micrococci and other organic elements and thus prevents the complications of the disease. It has no action on the Klebs-Löffler bacillus. To rid the throat of these, two agents stand preëminent—the perchloride of mercury and chlorine water.

In nasal diphtheria, the chief aim is to keep the passages clean, and the best method is by a nasal douche with a fountain syringe.

In laryngeal diphtheria, sublimed calomel and the vapor arising from slacking lime are useful. In older children, local applications may be made with a solution of papoid. If necessary, mechanical means should be used to prevent obstruction.

Microscopic examination has shown that the bacilli are found only on the surface and in the superficial layers of the pseudo-membrane. The bacilli in the surface may travel to healthy mucous membrane and set up irritation there. Treatment should be aimed chiefly at the healthy mucous membrane to kill the bacilli there and thus prevent the formation of the poison. The membrane is protective, rather than otherwise, and its removal by forceps, the actual cautery, caustics, etc., is irrational and does harm rather than good.

Randall, E. R.: Death from Chloroform. (*Brit. Med. Journ.*, 1892, i., 502.)

The patient was a boy, aged eleven years. On September 11, 1891, the left hip was excised for tuberculous disease. On October 16 the right elbow was excised for tuberculous disease. On February 6, 1892, it was decided to operate on the right ulna, which was carious. The chloroform was administered by Dr. Randall in the same manner as he had done at the two previous operations. About ten minutes after commencing the operation, the patient vomited, and his color was somewhat paler after this, but respiration was good; about three minutes later he again vomited. The dusky color produced during the straining did not pass off and the pulse at the wrist could not be detected; shallow respirations continued throughout. In spite of every effort, in about one minute spontaneous respiration ceased, all sphincters relaxed and the cornea was insensitive to touch. At the post-mortem no abnormality was detected in the heart, except rather more fat on the surface of the right ventricle than is usual at the age of eleven. The right side of the heart was empty and flabby. The lungs and other viscera were healthy.

Lancaster, E. Le C.: Oxygen in Diphtheria. (*Brit. Med. Journ.*, London, 1892, i., 551.)

The value of the inhalation of oxygen in restoring life seriously endangered by pulmonary trouble was strikingly shown in the following case of a girl aged four years and nine months, suffering from pharyngeal and laryngeal diphtheria. The child did well immediately after a tracheotomy, but the dyspnœa gradually returned owing to the extension of the membrane downwards and the development of broncho-pneumonia. Twice, after the use of oxygen, the dyspnœa and cyanosis were relieved, and this relief lasted on each occasion for about an hour and a half. Later on, however, she had a sudden attack of dyspnœa, and fell back in bed. When seen about five minutes afterwards the respiration had entirely ceased, no pulse could be felt at the wrist, nor could the heart be heard to beat; the face was of an ashen stone color, and the child apparently dead. Artificial respiration was vigorously employed, and oxygen administered under pressure, that is, during the inspiratory movements; the bag was firmly compressed between the hands of an assistant, thus forcing the gas into the lungs. The child finally rallied, and the same evening sat up in her bed and played with her doll. The child died gradually from

asthenia twenty-seven hours after the last administration of oxygen, and without having had any further suffering from dyspnœa.

Aitken, David Wm., (Edinburgh): General Symptoms Produced by Accumulations of Cerumen. (*Brit. Med. Journ.*, 1892, i., 652.)

Three cases are reported, two of which are children. In the first case, a girl, aged eight years, suffered from incessant cough, bad nights, with frequent night terrors, almost complete loss of appetite and emaciation. One ear was found blocked with wax, and upon its removal all the symptoms rapidly disappeared. The last case was a girl, aged eleven years, who had an exceedingly bad family history. The symptoms were rise of temperature and quick and irregular pulse. There were no head, eye, chest nor abdominal symptoms, and the urine was normal. The temperature ranged from 100° in the morning to 102° or 103° in the evening. The right ear was dull and filled with wax. This was very hard and came away in two parts like small almonds. The temperature was normal the evening after removal, and has continued so since. The pulse also has gradually improved.

Grognot: Reaction for Glucose in the Urine of Diphtheritics. (*Mal. de l'Enf.*, Paris, 1892, x., 119.)

The author found glucose in the urine, by Fehling's test and by the bismuth test, of three children out of four suffering from diphtheria. In one of the cases there were other symptoms of diabetes, to wit: rapid emaciation, and at the same time voracious appetite. He questions, however, if the reaction might not have been due to the asepsis employed in the treatment.

Leloir: Treatment of Hiccough by the Digital Compression of the Phrenic Nerve. (*Mal. de l'Enf.*, Paris, 1892, x., 135.)

This method has been employed a great number of times in cases of hiccough, chronic and acute, which had resisted all other treatment. The author has always succeeded in causing the hiccough to disappear by compressing for a few minutes, a few seconds in certain cases, the left phrenic nerve between the two sterno-clavicular attachments of the sterno-cleido mastoid. It is an interesting application of the researches of Brown-Séquard on inhibition.

- II.—MEDICINE.

Littlejohn, Harvey: Noma following Typhoid Fever. (*Brit. Med. Journ.*, 1892, i., 915.)

Photographs were shown of two cases of noma following typhoid fever. Both patients were children, and were being treated in the same ward at the same time, and attended by the same nurse. In one case both cheeks were affected, and in the other, in addition to the one cheek, the skin below the right trochanter became gangrenous before death. Death occurred in both cases. The treatment adopted was stimulation and locally washing out the mouth with 1 in 2000 solution of perchloride of mercury, and the application of cloths dipped in the same solution to the affected parts.

Willett, Edgar, (London): Aneurism of the Aorta in a Child. (*Brit. Med. Journ.*, 1892: i., 765.)

The specimen was taken from a child aged four. The sac, which was the size of a walnut, lay in the concavity of the arch of the aorta, with which it communicated by a small opening situated at the termination of the descending portion of the arch; the pathology of this sac and its possible connection with the ductus arteriosus were discussed, and microscopical sections of its walls were shown.

Eminson, T. B. F., (Scotter): Diphtheria and True Croup. (*Brit. Med. Journ.*, 1892, i., 1137)

Ten cases were attended in the course of a month. Of these ten cases six (including the early five) were laryngeal, the diphtheritic character being unsuspected in the first, and not established in the second case. Four of the six laryngeal, and one of the four non-laryngeal cases were fatal.

About the same time an unusual number of non-fatal cases of spasmodic croup, due apparently to the unusual climatic causes, were seen in the surrounding district. Does this fact explain why the diphtheria attacked the larynx in so large a proportion of the Scotter cases?

Tay, Warren: Symmetrical Retinal Disease in Infants. (*Brit. Med. Journ.*, 1892, i., 1022.)

In the present case the child, a male, aged eleven months, seemed dull and almost helpless, being unable to stand or sit without assistance, as the mother said, because he was "weak in the back." Sight appeared very defective. The eldest child of the same parents had ex-

hibited a similar condition, and had died slowly of wasting at fifteen months. There were symmetrical changes in the yellow spot, closely simulating those due to embolism of the retinal artery; there was, however, no obvious change in the discs. There were six children in the family, two of whom had been delicate, one of them dying of diphtheria, aged six. The others appeared well. The parents were first cousins. The father suffered from his heart, having had rheumatism when a boy. The mother had lost one brother by consumption.

Kingdon, E. C., (Nottingham): A Rare Fatal Disease of Infancy, with Symmetrical Changes at the Maculæ Luteæ. (*Brit. Med. Journ.*, 1892, i., 1021.)

The patient, aged eight months, was born at the full term, and appeared healthy till three months old, when gradually increasing weakness of the muscles of the trunk and limbs set in, so that when seen he was unable to sit up or turn over in bed. The muscles felt flabby, but the body was well nourished. The child was apathetic, rarely cried, and the face suggested mental enfeeblement. There was no sign of disease in the thorax or abdomen; no history of any previous illness, nor of rickets or syphilis. Good family history. Their first child had died when two years of age with similar symptoms. At the yellow spot region in each eye, covering a space nearly twice the size of the optic papilla, there was seen a whitish-grey patch, somewhat oval in shape (the axis being horizontal), with softened edges; a few retinal vessels crossed over its periphery. In the centre of the patch the fovea centralis appeared as a dark cherry-red spot. In addition there was commencing optic atrophy. The changes in the two eyes were identical. The child remained under observation for four months, when he died somewhat suddenly. During that time his general condition had not altered. The appearances at the maculæ luteæ persisted unchanged, but the optic atrophy had increased. Microscopic examination of the brain after death revealed marked changes in the pyramidal cells of the cortex; they were altered in shape, being mostly round or oval. The cell protoplasm was vacuolated, and formed an irregular shrunken mass around the nucleus. Sections of the spinal cord revealed "descending degeneration." The examination of the eyes was unsatisfactory, owing to the retina having become folded at the macular region.

Hawkins, Herbert, (London): General Arteritis in a Child, with Narrowing of the Abdominal Aorta. (*Brit. Med. Journ.*, 1892, i., 967.)

This specimen was shown at the Pathological Society of London. It was the aorta of a child aged eleven years, who had died, it was supposed, from acute nephritis. It was found at the post-mortem examination that there was disease of the aorta from end to end of the common carotid, subclavian and internal carotid arteries of both sides. The renal arteries were thrombosed. The disease consisted of grey, translucent patches, which showed microscopically a development of uniform cellular tissue between the elastic lamina and the epithelium, and some of the patches showed a deposition of firm white clot upon the endothelium. The spleen showed signs of old disease. For three inches above the bifurcation of the aorta there was a lamina of firm clot nearly closing the lumen. There was also similar disease throughout the pulmonary arterial system. There was no definite history of congenital syphilis, but two other children had died in infancy, and it was thought that the case was probably of syphilitic origin.

Leigh, C. W., (Chicago): A Unique Case of Rickets with Synchronous Heart-Constrictions and Inspiratory Acts, Each Fifty-four per Minute. (*Med. News*, 1892, lx., 213.)

The patient was a male child, two years and two months old. It was well nourished, but rachitic. The apex beat of the heart could be felt at the lower border of the tenth rib and half an inch to the left of the nipple. The heart boundaries were: upon the right side, the inner border of the sternum; superiorly the fourth intercostal space; and externally, the mammillary line. The tricuspid and the mitral sounds of the heart were normal; the aortic could not be heard on account of the exaggerated respiratory murmur. There were no heart murmurs. The pulse was fifty-four per minute.

Normal bronchial breathing could be heard over the entire chest, except that it was exaggerated. The percussion note was normal. The respirations numbered fifty-four per minute.

The child died two years later (July, 1890), during the reporter's absence from the city. The parents state that he was suddenly seized with a "fit," which was rapidly followed by others, and death resulted in less than three hours. There was no autopsy.

III.—SURGERY.

Hastings, E. B., (Shadwell): A Simple and Economical Form of Tracheotomy Tube. (*Brit. Med. Journ.*, 1892, i., 908.)

A very efficient tracheotomy tube for use after the tract has become fairly free by wearing a silver tube for two or three days, can be easily made with a piece of India rubber drainage-tube in the following manner: An oval piece is cut out of one side of the tube, the shorter diameter of the oval reaching about half way around the tube. Two longitudinal cuts are then made, one on the same side as the oval opening and the other opposite to it, reaching from the end of the tube to a point about a quarter of an inch from the opening; this distance will, however, vary with the depth of the wound that the tube is to be inserted into. In the lateral flaps made by these longitudinal incisions holes are cut for tapes. The piece of tube beyond the oval opening is the part which is put into the trachea. This tube has the following advantages. 1st. It fits the trachea well, having an angle instead of a curve and tilting of the lower end cannot occur to cause pressure and ulceration. 2d. The window allows laryngeal respiration to take place as soon as the diminution of the swelling has made the glottis patent. 3d. The cost of the tube is practically *nil*. 4th. Being made of drainage-tubing it is nearly always at hand.

Marsh, F.: Intestinal Obstruction from Plastic Peritonitis Caused by a Suppurating Mesenteric Gland. (*Brit. Med. Journ.*, 1892, i., 915.)

The patient was a delicate looking girl, *æt.* five. The illness began with vomiting and constipation followed the next day by pain about the umbilicus. The vomiting finally became *fæcal*, and on admission the face was anxious, the tongue dry, and the pulse rapid and thread-like; the abdomen was but little distended, but was tender upon pressure, specially on the right side. An exploratory, median incision was made without delay; the omentum was adherent to the parietal peritonæum and the coils of intestine were generally adherent to each other and the omentum, no one seeming specially distended. There was no effusion in the peritoneal cavity. In the right iliac fossa the last few feet of the small intestine were found contracted and empty, matted together and bound down by adhesions, and in breaking down these about a drachm of pus and a flake or two of caseous material escaped. The fossa was irrigated with hot boracic solu-

tion, a drainage-tube inserted, and an enterostomy rapidly done just above the constricted portion. She failed to rally, and died some ten hours afterward. The post-mortem examination confirmed the result found at the time of the operation. In addition two or three mesenteric glands were found enlarged, one had suppurated, and the breaking down of adhesions at the time of the operation had given exit to part of its contents. It was probably of tuberculous origin and evidently the cause of the peritonitis. No other lesion was found, both the cæcum and appendix being healthy.

Cheyne, Watson, (London): Umbilical Fæcal Fistula (*Brit. Med. Journ.*, 1892, i., 815.)

Mr. Cheyne showed before the Medical Society of London, an infant, æt. three weeks, with congenital, umbilical, fæcal fistula, and asked for suggestions as to treatment. The child was rapidly losing weight. The anus was present, and the sound passed in about an inch. The umbilical aperture seemed to lead into one canal. The general impression seemed to be that operative intervention was undesirable, but the hope was expressed that so interesting a specimen would be obtained.

Jack, E. E., (Boston): Faulty Position of the Head and Neck, Due to the Eyes, and Corrected by Tenotomy of the Eye Muscles. (*Boston Med. and Surg. Journ.*, 1892, cxxvi., 310.)

The patient is a boy, nine years old, whose head was constantly kept bent to the right and slightly twisted on a vertical axis in the same direction. The left side of the face was slightly more prominent than the right. The end of the nose deviated a little to the right, and the mouth was drawn up a trifle in the same direction. The right side of the head behind was fuller than the left. The head had been held sideways from babyhood. Vision of each eye was 0.9—, hypermetropia 1.50 D., and some astigmatism; axes oblique.

On March 16, 1890, the left superior rectus tendon was cut, and on April 18th, the inferior rectus tendon of the right eye was cut completely off. The last of May he began to hold his head perceptibly straighter. In September his head had become perfectly straight, and has continued so until now. A recent examination of the eyes showed a condition about the same as the original, but reversed. He gets along perfectly well, and has no trouble at school except that if he looks up suddenly the right eye deviates upward. This he easily overcomes.

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Original Communications.

THE RELATION OF PSEUDO-DIPHThERIC ANGINA TO DIPHTHERIA, WITH SPECIAL REFERENCE TO SCARLATINAL PSEUDO-MEMBRANOUS ANGINA.*

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IN mild cases of scarlatina the throat affection does not differ from simple angina, in more serious cases a pseudo-membranous affection often occurs which presents a striking resemblance to diphtheria, and offers the greatest difficulty to a differential diagnosis. Similar pseudo-membranous anginas occur secondary to measles and other infectious diseases, but more seldom than in scarlatina.

An epidemic of scarlatina prevailed in Baltimore the past winter, characterized by frequent complication of pseudo-membranous angina, which in some cases preceded the exanthem several days, and so closely resembled diphtheria as to render a diagnosis with the unaided eye difficult, if not impossible. In many cases even where the exanthem was present, the throat affection had such marked characteristics of diphtheria that physicians were often puzzled for an opinion, and had reference in the treatment chiefly for the latter disease.

*Read before the American Pediatric Society, Boston, May 3, 1892.

The importance of a clear distinction between affections so serious in character, and which, resembling each other clinically, yet differ in nature and the treatment required, led me to take advantage of the abundant material furnished by this epidemic to make a comparative study of the bacteria found in scarlatinal angina with the bacteria known to be present in true diphtheria.

The stimulus afforded by the discovery of the specific exciting cause of diphtheria has attracted to this subject the labor of different investigators whose work has yielded remarkably uniform results in the separation of diphtheric from scarlatinal and other pseudo-diphtheric anginas.

This work is so recent and of such great value, it may be permissible to depart from the request made in the preliminary announcement of this meeting and give a brief summary of some of the more important points, especially as the value of my own observation consists chiefly in the confirmatory evidence it affords.

The distinction between diphtheric and scarlatinal angina is based upon: 1st. Clinical features. 2d. Anatomical changes. 3d. *Ætiology*.

Clinical features.—In some cases the throat affection is not separable, but typical cases show considerable difference.

Scarlatinal angina.—The membrane has a yellow color, cannot be stripped off in connected shreds. There is tendency to ulceration and suppuration; adenitis is of more pronounced inflammatory character, redness and swelling prominent and purulent destruction of tissues frequent; increased sensitiveness of throat and greater pain in swallowing. The disease penetrates more into the depth, and extends by continuity frequently to the ear, seldom to the larynx, and still more seldom to trachea and large bronchi; capillary bronchitis and pneumonia somewhat more frequent than affection of the large bronchi.

Fever is active, and the relative proportion between the fever, general condition and local process is of diagnostic value.

If the fever is active and the symptoms in general of an

inflammatory character, while there are only small scattered deposits in the throat, especially when the disease has existed for some days, it is probably scarlatinal angina.

Diphtheric angina.—In fresh cases the membrane is white, has thick, tough consistence, and can be stripped off in large shreds. Suppuration is exceptional; pain and swelling less prominent; no tendency to ulceration. The disease extends chiefly on the surface, and by continuity, preferably to the air-passages. Fever is less active and confined more to the first stage when the disease is extending on the surface. It subsides much earlier, and if the temperature falls a few days after the beginning of sickness it points to diphtheria.

Anatomical changes.—Scarlatinal angina can resemble true diphtheria anatomically, especially in infants, but on the whole the anatomical appearances are more differentiating than the clinical.

Scarlatinal angina.—We are chiefly indebted to Soerensen¹ for information on this subject. His experience has been extensive and embraces a careful study of the pathological changes in many autopsies.

When death occurs early in the disease, the exudation on the surface of the inflamed tonsil appears to be more inlaid in the tissues than set on the surface, and the tonsil is melted down into a half purulent mass. Microscopical examination shows the superficial parts to be necrotic and micrococci single, in pairs, or chains in the dead tissue. These micrococci are also found in neighboring inflammatory districts, even where microscopic changes are inconsiderable, or where only circumscribed whitish coating covers the surface. In such places the necrosis is only recognized microscopically. In the more marked diseased foci micrococci are found in the depth, and laterally where epithelium is present or substituted by thin pseudo-membrane.

When death occurs late in the disease, ulceration is found microscopically more prominent, and in places

where it was not recognized clinically, and more extensive in depth and superficially than was supposed.

In apparently mild cases of angina there is superficial necrosis of the mucous membrane, and micrococci are found far over the surface of the slightly changed parts.

Microscopic examination of the pseudo-membrane shows an infiltrated or necrotic mucous membrane; an infiltration of leucocytes and changed epithelium, sometimes a half purulent mass on the surface of the deep ulcer.

In the throat there is tendency to penetrate into the depth, and in protracted cases there is great loss of tissue through ulceration. In fatal cases the process is not limited to the throat but extends outside of the neck and to remote organs.

First the tributary lymphatic glands suffer, they appear red, often have gelatinous consistence with purulent destruction of tissues. The diseased foci show under the microscope, necrotic tissue filled with micrococci. Micrococci are also found in the surrounding infiltrated tissue.

In severe throat affection where the tonsils are more or less completely destroyed, the extension of the diseased process to tissues outside of the neck is direct, and strings of whitish, often necrotic tissue extend from the ulcer on the side of the throat to the cavity of the ulcer on the side of the neck. The diseased process may extend widely over surrounding tissue, even over the clavicle to the anterior side of chest. The process resembles not only an ordinary diffuse phlegmon, but the superficial infiltration resembles erysipelas, especially in the microscopic examination which shows an invasion of micrococci as vanguard to the infiltration.

The remote organs of the body may show extensive diseased changes, as large white infarction in the spleen and suppurative peritonitis, also diffused, less extensive necrosis with degenerative changes in the cells in the large abdominal glands, and suppurative processes with rich infiltration of leucocytes, which in the kidney may form abscesses.

Though participation of the air-passages is, in general, infrequent, still in severe cases the larynx and lungs are frequently found affected. The pneumonia affords no peculiarity, but the laryngeal affection is characteristic. There is only moderate swelling except in cases of glottis œdema from deep ulceration. Microscopical examination shows chiefly necrosis and ulceration of the affected parts.

Not only are the characteristic necrotic and suppurative processes of the primary lesion found in remote organs, but also the same cocci, and in the diffuse changes in the organs thrombi of cocci in the small vessels are frequently found.

The invasion of micrococci in remote organs occur, as a rule, perhaps, always. This invasion is more certain and extensive when death occurs at a late period in the sickness, and especially when the disease resembles a general septic infection. The cocci are more numerous, the more prominent the local lesion in the organs. Certain organs show more favorable conditions for the activity of the cocci than others. The spleen examined in seven cases showed thrombi of cocci in five. The liver in ten cases had thrombi in five. Kidney in twenty-nine cases had thrombi in eleven. Thrombi of cocci in the capillaries of the skin in one case, and in one case cocci were found in a heart-clot.

Diphtheric angina.—Gangrene of the superficial mucous membrane and deep ulceration seldom occur. The cervical lymphatic glands have more solid consistence, hæmorrhagic color, and show whitish foci corresponding to the degenerated follicles. Purulent melting of tissues is exceptional, ordinarily only in protracted cases. In fatal cases the air-passages, as a rule, are implicated.

The false membrane has far greater extension, and more nearly the normal or an increased consistence. It is more adherent and removed with greater difficulty when found in a structure covered with flat epithelium as on the fauces than in one covered by cylindrical epithelium, and supplied with a basement membrane as in the larynx, though its essential structure is the same in both places.

The essential change in the structures in which the false membrane develops, is characterized by a death of the superficial parts, the epithelium, surrounded by living cells. In consequence of this the affected tissue undergoes the form of necrosis known as coagulation necrosis, and this is effected through the coagulation of the dead epithelial cells which furnish the fibrin ferment, the transuded serum and tissue juices containing the fibrinogen. The necrotic epithelial cells lose their nuclei, assume a hyaline and refractive appearance, and undergo various changes in size and form, building, as it were, a fibrinous frame or net-work. Inflammatory products, leucocytes, red blood-corpuscles, serum and fibrin participate in the formation of the false membrane, and the underlying basement membrane undergoes similar changes. It becomes hyaline, converted into a dense network of glistening refraction containing leucocytes, red blood-corpuscles and fibrin, but there is one important distinction consisting in the fact that the deeper structures contain blood-vessels whose walls are hyaline and necrotic, but which, nevertheless, still contain circulating blood.

The separation of the membrane leaves behind it a raw, bleeding surface, and in cases where the separation is accompanied by suppurative or gangrenous processes, ulceration of the underlying structures results.

Relation of the bacilli to the false membrane. The bacilli are found in and underneath the superficial layer of the false membrane. The most superficial layer is made up largely of a great number and variety of organisms, mostly saprophytic. The layer of the membrane in which the diphtheric bacilli are found is rich in cells. As the pseudo-membrane passes inwards towards the basement membrane fewer cells are found, and here, too, the bacilli are much fewer. Then follows a wide fibrinous layer, the thickest part of the false membrane, and this lies directly upon the basement membrane of the mucosa. Few or no bacilli are found here. The cellular outer zone is the oldest part of the pseudo-membrane, it is the first reaction

product to the original irritation, resulting from the action of the diphtheric virus. In the growth of the false membrane the force exerted from below raises the membrane more and more, and causes it to overlap the adjacent preserved epithelium in a mush room-like manner of growth.

The bacilli do not invade the blood and tissues of the body, but the toxic products of the diphtheric bacilli are absorbed and definite lesions result in various tissues of the body. Oertel² described these lesions at length. They consist of death of cells, which suffer fragmentation of nuclei, complete disintegration, and then a fibrinous metamorphosis takes place. This form of cell death is met in its greatest intensity in the lymphatic glands adjacent to the affected part, but it is found in distant glands, the spleen and other structures. These affected organs contain neither the diphtheric bacilli nor other organisms, and the change is not of a suppurative character.

These lesions have been reproduced in lower animals (guinea-pig, kitten, rabbit) by Welch³ and Flexner, both by the use of diphtheric bacilli for inoculation, and by the toxic products of the bacilli. The inoculation of the bacilli produced a pseudo-membrane in the throat, skin and elsewhere in these animals.

The injection of the toxic products of the diphtheric bacilli, while causing the general and specific lesions of the disease, do not give rise to the false membrane.

Ætiology.—The decisive and practical distinction between diphtheric and pseudo-diphtheric angina is based upon the established belief that diphtheria is caused by a specific organism, the bacillus known as the Klebs-Löffler bacillus or bacillus diphtheriæ, and when this bacillus is found associated with diphtheritic processes, it is safe to consider the disease diphtheria; on the contrary, when this bacillus is not found in such processes it may be considered that the disease is not diphtheria.

It is necessary, then, in order to differentiate pseudo-membranous angina occurring in other diseases from

diphtheria, to determine whether or not the bacillus diphtheriæ is present. But this may not be altogether simple, and complicating conditions may arise which, as yet, are not understood, and which may serve to modify our convictions of the relation between the diphtheric bacilli and the local lesions.

It is necessary to consider that there is a great variation at times in the virulence of the diphtheric organism, and that a bacillus occurs, although infrequently, whose morphology is identical with that of the true diphtheric bacillus, and whose only difference is that it is free from pathogenic properties. This so-called pseudo-diphtheric bacillus is then to be identified only by the inoculation of susceptible animals, and in a given case it cannot be maintained that the organism is virulent unless this last test has been made. It is well to state, however, that whereas in most cases of true diphtheria the virulent organisms are present in large numbers, when the pseudo-diphtheric bacilli have been found they were not so numerous.

The entire absence of the virulent and non-virulent diphtheric bacilli in a diphtheritic process forms the certain criterion that the process is not diphtheric in character.

That such processes do occur, in which neither the diphtheric nor the pseudo-diphtheric bacilli are found, we have valuable testimony from a number of competent observers.

Wurtz ⁴ and Burges examined eleven cases of pseudo-membranous angina following scarlatina, most of which presented the picture of true diphtheria. In nine of the cases in which the angina appeared early, diphtheric bacilli were not found, in the other two cases the angina occurred later than the exanthem, in one case in seven, the other in sixteen days, and the Klebs-Löffler bacilli were found.

In all the cases streptococci were found, which showed resemblance, but not identity to streptococcus erysipelatus. Staphylococcus aureus was found in five cases, and albus in one.

In five cases of scarlatinal pseudo-membranous angina examined by Löffler, diphtheric bacilli were not found in four cases. The fifth case died on the eighteenth day of sickness, and diphtheric bacilli were found in an extensive croup in the larynx and trachea.

Escherich ⁵ has reported four cases of pseudo-membranous affection of the throat occurring in scarlatina, one in measles, eight cases of follicular tonsillitis, and one of catarrhal pharyngitis.

The virulent diphtheric bacilli were found in two of the scarlatinal cases, the non-virulent bacillus in one case, and a bacillus resembling the diphtheric bacillus, but not tested in lower animals, in one case.

In the case of measles death occurred on the fourth day. Autopsy showed a thick easily removed membrane over the larynx, trachea and bronchi and diphtheritic coating on the pharynx in places which were not visible during life. A nearly pure culture of virulent diphtheric bacillus was cultivated from the membrane in the larynx.

In seven of the cases of follicular tonsillitis, and the case of catarrhal pharyngitis, the diphtheric bacillus was not found.

Tangl ⁶ reports seven cases of scarlatina with grayish white pseudo-membrane on the tonsils or other parts of the throat, in none of which the Löffler bacillus was found, but in all the cases there were many colonies of streptococci. The cultures in these cases were made early in the sickness, some on the first day.

Baginsky ⁷ never found the Löffler bacillus in children brought to his hospital affected with scarlatinal angina. But it was not unfrequent to have children brought to the hospital with diphtheria in whom the Löffler bacillus was found, suddenly break out with an eruption similar to that of scarlatina, and the pharyngeal affection change from the true pseudo-membranous character to a more smeary consistence, with dark gray or greenish color. As soon as this happened renewed cultures no longer gave diphtheric bacilli, but only cocci. Apparently a new

contagion had overgrown the diphtheric contagion and suppressed it.

Babes,⁸ Kolisko,⁹ and Paltauf and Heubner¹⁰ did not find diphtheric bacilli in ordinary cases of pseudo-membranous angina occurring in scarlatina.

Kurth¹¹ found a luxuriant growth of streptococci on the surface of the tonsils in all cases of scarlatina examined by him; other germs occurred only sparsely in various cases.

In a majority of fatal cases the surface of the tonsils and mucous membrane bordering on the larynx, showed extensive destruction of tissue, which afforded a wide entrance port for the germs into the body; and streptococci were found in the internal organs after death, resembling those on the tonsils during life. They were especially numerous in the spleen and liver.

To this evidence I am able to add the result of the examination of twenty-two cases made in the above mentioned epidemic of scarlatina.

Eleven of the cases had scarlatina with pseudo-membranous angina, two of which were fatal. Four had scarlatina with redness of throat without pseudo-membrane. One had pseudo-membranous angina, similar to that of the scarlatinal cases, without exanthem. Two had measles followed by membranous laryngitis without visible deposit in the throat, one of which was fatal. One had measles followed by pseudo-membranous affection of throat and eyelids and proved fatal. Three had ordinary follicular tonsillitis without resemblance to scarlatina or diphtheria.

The methods used in this study were the same as those found successful by Prof. Welch and Dr. Abbott in investigating the ætiology of diphtheria. Cultures were made by removing pieces of pseudo-membrane or deposit from the throat by means of a sterilized platinum scoop, or when no patches were present, by scraping the inflamed surface of the throat, and inoculating on slanting glycerine agar. Three or more tubes of glycerine agar were used in each case. The platinum scoop containing the deposit from

the throat was smeared over the slanting surface of the first tube, and then, without again sterilizing, smeared over the second and succeeding tubes.

Cultures were kept in the thermostat at 38°C. Cover-slip preparations were made from the throat in most cases.

In this study I had the council of Prof. Welch and the assistance of Dr. Flexner, Fellow in pathology in the Johns Hopkins University, who has been engaged in connection with Prof. Welch for the past twelve months in studying the properties of the bacillus diphtheriæ, and to whom I am indebted for cultures from three of the cases.

Description of the individual cases :

CASE I.—*Scarlatina*.—Two years old, fat and well-grown. Taken sick February 7, 1892, with vomiting and fever. Thin white deposit formed on fauces and soft palate, which was easily removed; thick grayish deposit on pharynx, removed with difficulty, and left a bleeding surface; profuse purulent discharge from throat and nares; lymphatic glands of neck enormously swollen and soft, body covered with scarlet rash. Symptoms continued to grow worse; cervical gland on left side ruptured through the cheek near anterior arch of fauces, and discharged a quantity of thick pus. Conjunctiva became red and eyelids covered with whitish deposit. Death February 17th. Autopsy not granted.

Cultures, February 11th, from patches on the fauces and pharynx. First tube thick with colonies. Second tube, colonies numerous but well isolated.

Small blue colonies of a streptococcus predominated. Few colonies of staphylococcus aureus and albus. No colonies of Löffler bacillus.

The streptococcus was cultivated from the original tube twelve days later, but its vitality was diminished in subsequent generations. At first cultures succeeded after seven days, and finally failed to grow after five days. Vitality much more persistent in milk cultures, when it was reduced to five days in glycerine agar the cocci were found alive in milk after twenty-eight days.

Morphology.—Small cocci, nearly uniform in size, and growing in chains.

Milk-litmus reaction.—Milk apparently not affected; blue litmus faded slightly and then changed to pink tint, never decided pink. Gelatine and agar growth is slow.

Colonies remain small and are seen with difficulty with the unaided eye.

Cover-slip preparations from the membrane on pharynx was nearly pure of streptococci, with few staphylococci and rounded end bacilli. No forms like Löffler bacillus.

Two platinum loops from a twenty-four hours' agar culture, third remove from the original, introduced under the skin of a mouse had no effect.

CASE II.—Eight years old. Taken with fever and vomiting February 9th. Thick grayish membrane formed on the pharynx and tonsils; cervical lymphatic glands moderately enlarged. Death February 16th. Autopsy not granted.

Cultures made February 15th, from patches on the pharynx and tonsils. Small blue colonies largely predominated; many colonies of staphylococcus aureus. No colonies of Löffler bacillus. The small blue colonies represented a streptococcus and an oval bacillus, which sometimes grew in chains and in some stages of growth resembled micrococci. The streptococcus had feeble vitality, and could not be cultivated after a few days. It was so intimately associated with the oval bacillus, that it was never separated in a satisfactory manner for studying its properties. It is a small coccus growing in chains.

Cover-slip preparations from the throat showed no forms like Löffler's bacillus.

CASE III.—Two years old, fat and well-grown. Sickness commenced February 12, 1892, with fever and vomiting. February 13th: Throat red, grayish-yellow patch on each tonsil; lymphatic glands of neck enlarged. February 15th: Scarlet eruption appeared for the first time on the body.

Cultures made February 16th, from the membrane on tonsils. Chiefly small blue colonies of a streptococcus, few yeast fungi and staphylococcus aureus. No colonies of the Löffler bacillus.

Cover-slip preparations from the patch on tonsil showed streptococci, other cocci and few narrow, rounded end bacilli. No forms like the Löffler bacillus.

Streptococcus.—Vitality more persistent than the cocci in the two previous cases.

Morphology.—Moderately large cocci, in chains, individual members vary very much in size.

Milk-litmus reaction.—Milk apparently not changed; blue litmus slightly faded in twenty-four hours, changed to pink tint in two days, and decided pink in four days.

CASE IV.—Seven years old; sick eight days. Grayish-yellow patch on the pharynx; thick purulent discharge from nose and throat. Scarlet rash which had covered the body disappeared, and desquamation commenced around the neck.

Cultures from patch on pharynx, chiefly streptococcus. Few orange sarcina and staphylococcus albus.

Streptococcus appeared identical in biological properties with that of Case III.

CASE V.—Sixteen years old; sick three days; vomiting and diarrhœa; throat red, grayish-white patch on tonsils; cervical lymphatic glands enlarged.

Cultures from the patch on tonsil and red spot on fauces. Apparently pure culture of a streptococcus identical with that of Case III.

CASE VI.—Four years old; sick fourteen days; thick grayish deposit on tonsils and pharynx not easily removed; lymphatic glands of neck slightly enlarged. Eruption on the body faded.

Cover-slip preparations from throat showed no forms like Löffler's bacillus.

Cultures from patch on tonsil. Small blue colonies of a streptococcus predominated. Few colonies of staphylococcus albus. No colonies of Löffler bacillus.

Streptococcus had feeble vitality, and was lost in gelatine and agar after a few days, but continued active in milk twenty-eight days.

Milk-litmus reaction.—Milk coagulated in forty-eight hours; blue litmus completely reduced leaving a solid white coagulum, which was changed in a few days to decided pink, the pink commencing at the top and gradually extending over the clot.

Gelatine and agar growth resembled that from Case I.

Morphology.—Small coccus growing in chains. In old cultures the coccus divided longitudinally and transversely like tetragonous.

CASE VII.—Six years old; sick two days; vomiting and sore throat; throat red, thick white patch on inner surface of each tonsil, easily removed; lymphatic glands of neck enlarged. Body covered with profuse scarlet rash.

Cultures from patch on tonsil. Small blue colonies of a streptococcus predominated. Few colonies of staphylococcus albus. No colonies of Löffler bacillus. Streptococcus resembled that from Case VI.

Two platinum loops from the original glycerine agar culture, forty-eight hours old, introduced under the skin of a mouse had no apparent effect.

CASE VIII.—Seven years old; sick two days; fever, vomiting and sore throat; throat red, grayish patch on inner surface of each tonsil; lymphatic glands of neck enlarged. Body covered with scarlet rash.

Cultures from patch on tonsil. Apparently pure of small blue colonies of a streptococcus identical with that of Case VI. No colonies of Löffler bacillus.

CASE IX.—Sixteen years old; sick eight days; throat red, grayish deposit on pharynx; exanthem faded.

Cultures from deposit on pharynx. Small blue colonies of a streptococcus predominated. Few colonies of staphylococcus aureus. No colonies of Löffler bacillus.

Cover-slip preparations from the pharynx showed no forms like Löffler's bacillus.

CASE X.—Six years old; sick two days; throat red, tonsils covered with thin white membrane. Scarlet rash over body.

Cultures from surface of tonsils. Streptococcus predominated. Few colonies of staphylococcus aureus. No colonies of Löffler bacillus. Streptococcus resembled that of Case VII.

CASE XI.—Seventeen years old; sick two days; throat red, whitish deposit on tonsils and soft palate, pultaceous and easily removed; lymphatic glands of neck enlarged. Body covered with scarlet rash.

Cultures from deposit on tonsil. Streptococcus predominated, it had feeble vitality and cultures died before the properties were studied. No colonies of Löffler bacillus. Few colonies of staphylococcus. A piece of the deposit from throat, size of a wheat grain, was introduced under the skin of a mouse without effect.

CASES XII., XIII., XIV., XV.—Children sick with scarlatina two days. Scarlet rash on body. Throat red without false membrane or deposit at any time. Cover-slip preparations from the throat had no forms like Löffler's bacillus.

Cultures from scraped surface of throat. Streptococcus predominated in each, and each contained colonies of staphylococcus aureus. No colonies of Löffler bacillus. Streptococcus from Case XV. resembled that of Case VI. Streptococcus from the other cases resembled that of Case III.

CASE XVI.—Thirty years old; throat red and very painful; tonsils swollen, thick grayish deposit on tonsils and pharynx, similar to that of scarlatinal cases. No eruption on body. Confined to the bed seven days. Three children in the same house affected with scarlatina.

Cultures made on fourth day of sickness from patch on the pharynx. Nearly pure culture of a streptococcus of very feeble vitality, which was lost altogether after a few days, and before its properties were studied. No colonies of Löffler bacillus. Few colonies of staphylococcus aureus.

CASE XVII.—*Measles*.—In the practice of Dr. S. W. Seldner who furnished the following history: Three years old; sick March 6th with coryza and bronchitis. 9th: Characteristic eruption of measles appeared; conjunctiva red. 12th: Pseudo-membrane on tonsils and pharynx; profuse nasal discharge. 14th: Redness of conjunctiva considerably increased. 15th: Distinct membrane on the eyelids.

Cultures made by Dr. Flexner, March 16th, from the throat and patch on eyelids. No colonies of Löffler bacillus from either. Chiefly small blue colonies of streptococcus which resembled those in Case I. in morphology and colony growth, and Case — in milk-litmus reaction. Many colonies of staphylococcus aureus.

Cover-slip preparations from the eyelids and throat showed no forms like Löffler's bacillus. This child died. Autopsy not granted.

CASE XVIII.—Four years old; sick one week previous to March 29th, when first seen by Dr. R. W. Johnston. Coryza, cough, conjunctiva red; eruption of measles beginning to fade. Another child in the same bed with characteristic eruption of measles. Laryngeal affection with marked croupous breathing appeared March 30th. No patches visible in the throat.

Death April 2d. Autopsy only allowed on the throat. The whole larynx was covered by a tough very loosely adherent membrane.

Separate cultures were made from the membrane by Dr. Flexner and myself. No colonies of Löffler bacillus developed from any of the cultures. Only streptococci and few staphylococci.

Cover-slip preparations from the membrane showed no forms like Löffler's bacillus.

Dr. Flexner made careful examination of sections of the larynx and attached membrane and a neighboring lymphatic gland. Löffler bacillus was not found in the membrane, and the tissue changes in the lymphatic gland were not those of diphtheria.

CASE XIX.—Three years old; sick four days; body covered with characteristic eruption of measles; conjunctiva red; coryza; cough; throat red but no deposit. Receded croupous breathing with considerable recession of soft parts of chest. Laryngeal stenosis continued seven or eight days. Recovery.

Cultures made from the throat on fourth day of sickness. Chiefly colonies of streptococci. Few of staphylococcus aureus. No colonies of Löffler bacillus.

CASES XX., XXI., XXII.—*Follicular Tonsillitis*.—Children sick two days, little or no constitutional disturbance; throat red, small white patches on surface of tonsils, slightly swollen. No rash over the body. Recovery in a few days.

Cultures from patches on tonsils gave numerous colonies of streptococci resembling those from the scarlatinal cases. Streptococcus from Case — resembled that of Case IV. Streptococci from Cases — resembled that of Case VI. No Löffler bacillus in either of these cases.

These cases were taken from private practice, and occurred in an epidemic of scarlatina in which more than half the cases of this disease seen by me had pseudo-membranous affection of the throat. Many of the cases were such as have previously been considered diphtheria complicating scarlatina, or, as in Cases III. and XVI., primary diphtheria.

At the time of this epidemic of scarlatina, an epidemic of influenza was at its height in the city. A physician attending a large number of scarlatinal patients, and another man over sixty years old, living in the house with a child affected with scarlatina, were taken with influenza,

and had throat affection similar to that of the scarlatinal cases.

At the same time diphtheria was not prevalent, and the city was unusually free from this disease. Only one case of diphtheria in private practice and two at the dispensary were seen by me the entire winter.

The Löffler bacillus was not found in any of the cases of pseudo-diphtheric angina, even in those in which the throat affection came later than the exanthem, and continued a longer time, where according to the experience of others it might have been expected. The absence of diphtheric complication from such a large number of cases of angina may be explained by the comparative freedom of the city from diphtheria at the time.

Streptococci were found in all of the cases in predominating numbers, and in several cases as a nearly pure culture.

Staphylococcus aureus occurred in eleven cases of scarlatina and the three cases of measles, and *staphylococcus albus* in four cases of scarlatina.

The staphylococci appeared in mild as well as serious cases. In Case I., with extensive swelling and suppuration, both *albus* and *aureus* were found, but neither in large numbers.

A difference was observed in the streptococci, apparently representing two leading types, but whether sufficient to constitute varieties is uncertain. The present methods for differentiating streptococci are unsatisfactory, and the properties of streptococci are not easily studied owing to feeble vitality, slowness of growth, small size to which the colonies attain and the facility with which their properties are changed with slight alteration in environment.

One type had larger morphology and considerable variation in size of the individual cocci forming the chains. This type when introduced into milk-litmus quickly reduced litmus and coagulated milk, then restored the litmus, but with decided pink color instead of blue.

The second type had smaller and more uniform mor-

phology and when introduced into milk-litmus caused blue litmus to fade but never completely reduced, and then changed to a slight pink tint. Milk was apparently unaffected and never coagulated.

The experiments with milk-litmus were repeated a number of times with unvarying results.

A difference was also observed in the colony growth upon gelatine and agar, but this has not been sufficiently studied and repeated to be certain of constancy, and does not warrant a more definite description than that a difference was recognized.

The streptococci from some of the cases do not fall under either of the two leading types. The streptococci from Cases VI. and XVII. correspond in morphology, colony growth, and feeble vitality more with the second type, in milk-litmus reaction with the first.

The two types do not represent a difference in severity of the cases from which they were cultivated. Both types were found in severe and mild cases. As a rule, those with small and uniform morphology, feeble vitality, and no apparent action on milk were found in the more serious cases.

The streptococci from all of the cases retained their vitality much longer in milk than in agar, gelatine and bouillon. No difference was established between the streptococci found in cases of measles and follicular tonsillitis from those in scarlatina.

Kurth¹¹ recognized a difference in the streptococci found in throat affections of scarlatina, different forms of streptococci occurring not only in different cases of scarlatina, but sometimes in the same case. For differentiating the cocci he relied chiefly upon the growth in bouillon, especially the nature of the sediment and form of the chains; also the minimum temperature required for growth; virulence for white mice, and life duration in bouillon cultures.

Two groups were thus distinguished and designated, streptococcus rigidi and streptococcus flexuosi. Streptococcus rigidi, in bouillon cultures, forms short, straight chains; the precipitate is loose and does not hang

together; in some of this group there is slight clouding of bouillon, in others more decided clouding. Representatives of this group are found in the healthy mouth, pus, etc.

Streptococcus flexuosi in bouillon forms long, coiled chains. In one variety, designated *streptococcus conglomeratus*, the sediment is membranous or scaly and firmly adherent. Kurth attaches much importance to this variety. It is strongly pathogenic for mice, and all the cases of scarlatina in which it was found ran a serious course.

Unfortunately, I did not see an account of this work by Kurth until my cultures were destroyed, and I then lost the opportunity to make full comparison with his results. But Dr. D. A. Campbell who was engaged in the laboratory at the same time my work was going on, in studying the growth of streptococci, from different sources, in bouillon, and to whom I gave cultures from a number of my cases, has furnished me the following notes from these cultures:

In bouillon, slight cloudiness was usually manifested in twenty-four hours, but did not become decided until the lapse of seventy-two hours. Then a sediment would be noticeable at the bottom or lower part of sides of the tube; the supernatant fluid was quite clear. After agitation, the fluid became uniformly turbid, and presented a granular appearance, the granules having a grayish-white appearance. Microscopical examination usually showed three noticeable characteristics. With some cultures only short chains were seen, there being not more than ten or twelve cocci in the chain; these appeared to be the largest individual cocci. In other cases the chains were quite long and curved in different ways, some being looped. In these cultures in addition to long chains, clumps of streptococci densely matted together and having individual chains of varying length projecting from the margin were noticed.

The cultures in which long, curved chains were found came from the more serious cases, and in this respect

corresponds with Kurth's results, but the character of the sediment does not answer to his description of the streptococcus which he found in the more serious cases of scarlatina.

The three cases of measles are of especial interest. It has previously been considered that pseudo-membranous affections of the larynx, secondary to measles were, as in Escherich's case, undoubtedly true diphtheria. In Case XVIII., we have ætiological and anatomical evidence of a tough pseudo-membrane in the larynx which is not of diphtheric origin or nature. Case XIX. resembled Case XVIII. clinically, and it is probable a similar condition existed in the larynx. Here, also, the ætiological evidence, while not so convincing, indicates a non-diphtheric origin. In Case XVII. of measles, the pseudo-membranous affection of the throat and eyes resembled Case I. of scarlatina, and the streptococci cultivated from these two cases resembled in morphology and feeble vitality.

A consideration of these cases in connection with the above cited work of other investigators leads to the following conclusions:

Pseudo-membranous affections of the throat occur secondary to scarlatina, measles and, perhaps, other infectious diseases, which often give the clinical features of diphtheria, but which differ from this disease in nature and ætiology.

The clinical features are not sufficiently distinctive in all cases to differentiate these affections from diphtheria, while the anatomical changes in the body resulting from the effects of the bacillus diphtheriæ have been carefully studied by different investigators and appear to be characteristic. A like careful study has not been made of the anatomical changes resulting from pseudo-diphtheric processes, but so far as this study has been made, it may be safe to consider the anatomical changes as entirely distinct from those of diphtheria.

The anatomical changes, save the pseudo-membrane, resulting from the effects of the bacillus diphtheriæ are not occasioned by the direct action of the bacilli, which

do not invade the body, but by a toxic substance produced by the bacilli. These changes are characterized especially by focal necrosis of tissues, with peculiar splitting of the nuclei of cells.

The anatomical changes resulting from scarlatinal diphtheria are accompanied with an invasion of the body by streptococci, and are largely suppurative processes which appear to be the direct effect of these organisms. Necrosis of the tissues also occur in this disease, but a comparative study has not been made with the necrosis resulting from diphtheria.

The ætiological factor furnishes the certain criterion for the separation of diphtheric from pseudo-diphtheric processes, but even with this advantage, a differential diagnosis may be difficult in individual cases.

Both measles and scarlatina render the tissues especially vulnerable to the diphtheric bacillus, and complications of diphtheria with these diseases are not uncommon.

The constant occurrence of streptococci in pseudo-diphtheric processes, and in numbers proportionate to the degree of tissue changes, indicates a casual relation of the cocci to these processes.

This view is strengthened by the observations of Soerensen, that the cocci form the advance guard of the anatomical changes; that in quite fresh cases of scarlatinal diphtheria they have already penetrated deep in the mucous membrane; that they are scattered in the surroundings of lymphatic gland abscesses; that they form the advance guard of the infiltration in extensive phlegmon, and in cases where infarction of the spleen and peritonitis occur together, they are found in the coating on the spleen.

The streptococci found in pseudo-diphtheric angina have not been identified as one species or differentiated from other known streptococci, but it appears probable that different varieties of streptococci may occur in different cases of pseudo-diphtheric angina, and there is also some grounds for the belief that certain varieties of streptococci are associated with the more serious cases of pseudo-diphtheric angina.

This view of the causal relation of streptococci to scarlatinal pseudo-membranous angina has nothing to do with the specific ætiology of scarlatina, of which we are at present entirely ignorant.

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FORMS OF DIPHTHERIA WHICH SIMULATE SIMPLE ANGINA.*

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SINCE the specificity of the Klebs-Löffler bacillus has become more an accepted fact by all clinicians, the clinical study of diphtheria has presented many new and hitherto unexpected difficulties. It was at first thought no doubt, and with much justice, that the specific nature and virulence of this peculiar micro-organism once established the clinical aspects of diphtheria would become much simplified. A careful study of this question, however, shows that recent published facts if sustained will

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nullify many hopes entertained by those clinicians who expected a unity of results in all cases of diphtheria (membrane), clinically speaking. We are now recognizing the condition diphtheria, a membrane, and diphtheria the disease. The presence of a membrane does not by any means complete the diagnosis of a case of throat disease. I need scarcely remind my hearers of the recent German publications of Baginski. The clinical identity of two sets of cases in gross manifestations, but of widely differing prognostic significance and importance.

These investigations when considered in connection with certain work of others whom I need scarcely mention, are likely to become the entering wedge of a series of observations of wide bearing significance both from a prophylactic and therapeutic standpoint. In a series of studies upon diphtheria of the tonsils, pharynx and larynx begun in the early part of this year and conducted in the Carnegie laboratory, I was impressed by certain facts from a clinical standpoint, which cannot fail to be of interest to those who have this subject brought home to them through daily contact with subjects suffering from throat affections of an acute nature in daily practice. Among other things, I directed my attention to an immense mass of cases which are of daily occurrence, the so-called doubtful cases in which even now from a purely clinical standpoint and examination unsupported by any bacteriological confirmatory data, the most skilful physicians may honestly differ in opinion. Fortunately my material presented variety in various directions, and I have brought the most recent bacteriological facts to bear upon these so-called doubtful cases. We are brought daily face to face with acute throat affections some presenting exudates of greater or lesser extent, in which simple clinical inspection leaves us in great doubt as to their true nature. The more we examine such patients the less decided we become as to their malady. My studies include an analysis of thirty-four such cases. These cases, many of them, had been examined by other physicians before they fell under my care, and the diagnoses were at

variance with the results of serious study. Not that from this we can argue any lack of skill, for even now such error might be honestly repeated. These cases included first, those in which a careful inspection of the throat revealed no membrane or even specks of membrane. Such children gave certain clinical pictures which I will later on describe. Again, other cases presented the membrane as a mere speck upon one tonsil which could not be distinguished in appearance from a follicular crypt or lacuna. In other cases there was the typical appearance of follicular tonsillitis in one tonsil while on its opposite fellow such follicular plugs were supplemented by a patch of irregular shape, small, and which many would call not membrane, but dried fibrinous exudate, innocent in nature between the follicles. Without anticipating too much, certain exudates upon the tonsil and pharynx thought to be diphtheritic were found to be of a non-diphtheritic type.

I do not intend to present details either of history or study in this short communication, but reserve these for future publication. In all of the cases, the membrane exudate or secretions were removed from the tonsil, soft palate or posterior pharyngeal wall by means of a very small and thin sterilized scoop as is used in ear work. It was then passed over the surface of one or more tubes of Löffler blood-serum and bouillon mixture. From this starting material the pure culture of the Löffler bacillus was obtained, first by the dilution methods of Löffler, and then upon agar plates. The pure culture obtained it was studied in the regular way upon blood serum various agars, glycerineagar, bouillon, gelatin and potato. Its temperature and staining peculiarities were studied, and finally its virulence determined by its injection either in sterile water or bouillon suspensions, or directly placing it underneath the skin of guinea-pigs. Thus no case is presented to you which has not been thoroughly proven both as to culture media and *animal experiment*. This communication is intended to be purely clinical and will not bring forward details of experiments.

The first series of cases to which attention is called begin suddenly with symptoms of laryngeal involvement. The patients may have suffered a few days or a week from an amygdalitis which has been diagnosed and treated as benign. Daily examination of the throat fails to reveal even a suggestion of membrane. Suddenly new symptoms appear in the form of stridulous cough and breathing and temperature, completing a picture of laryngeal disease. In some cases even when the laryngeal complication appears, a careful daily inspection of the throat fails to reveal any membrane, and even in the whole course of the case no visible membrane appears, and the patient recovers. These cases are very similar to those published by Roux. In this absence of membrane and recovery lies the danger of the disease and its power to harm others by disarming suspicion, and rather concealing the true diphtheritic nature of the affection. These cases may infect others in whom also tonsillar and laryngeal symptoms may appear without any visible membrane on the tonsils or pharynx, and these may recover; and finally, other cases infected by such cases at first not showing membrane in the pharynx will in a few days develop spots of membrane on the tonsils and pharynx, and die of typical pharyngeal and laryngeal diphtheria and stenosis. Again, another series of cases are those which we may treat for days as simple amygdalitis, daily inspection failing to show any membrane; suddenly a croupy cough appears in its train, also stridulous breathing; then, upon looking into the mouth, one or two exceeding small specks of membrane just forming on the tonsil and posterior pharyngeal wall are seen; death may follow with laryngeal stenosis within twenty-four hours.

The first case of this series was a girl, æt. four years, who had been treated by me a week previous for an amygdalitis which had subsided; upon this, a week subsequently, a stridulous cough appeared, and listening to the breathing, it had a stridulous character; there was no distress visible; the child walked to my clinic, but there was a temperature of 101° , and herpes labialis. The tonsils

were large and red, but over the surface there was a hazy tint to the pink of the tonsil as when one breathes upon glass. No distinct membrane. The stridor alone disquieted me, and I sent the patient home and tried to observe her there. In four days the croupy cough subsided and the child got well. A *daily* inspection of the throat failed to reveal membrane.

Meanwhile a sister, æt. five-and-a-half years, previously perfectly well, was attacked with the same cough and breathing, an examination of the throat here revealed nothing except the swollen tonsils and red pharyngeal mucous membrane. No diphtheritic spots; no membrane. Recovery after four days.

Two days after the beginning of the illness of this sister a third sister (the family being three girls) became ill.

This third case is the most interesting of the three, as upon the first day of illness the tonsils were swollen, inflamed, the pharynx red, there was croupy cough, but slight stridulous breathing. The tonsils were red, but the red was as if it had been breathed upon, no membrane, no yellow follicular spots, no glandular swellings at the angle of the jaw. Only on the second day of the illness did spots of membrane the size of a pin head appear on the tonsils and posterior pharyngeal wall. Death followed on the third day of illness preceded by spreading membrane and infected glands. There was laryngeal stenosis.

We here see two mild cases, examined daily, run their course without visible membrane and recover, while the third case develops membrane and succumbs. In all the above cases the tonsils were scraped on one or the other side, and in the first and third cases the pure culture of the bacillus isolated, which in every way corresponded to the Löffler micro-organisms, and was tested upon guinea-pigs. The animals died after forty-eight hours to several days with local hæmorrhagic œdema or exudate, large spleen and other symptoms characteristic of death from this bacillus.

Contrasted with the cases above mentioned are such as the following, which as far as my observation allows me

to judge are of an innocent nature, though apparently of sufficient contagiousness to infect at least a family of three children in which all three children fell under my observation:

The youngest, æt. two years, five days previous to visiting me was attacked with cough and soreness of the throat as mother stated. A brother, aged six years, was attacked with same kind of illness, cough for two days past, and the last to be attacked was a boy, æt. four years. In this patient there was a metallic or croupy cough, no croupy breathing, slight fever and pains in the limbs. Examination showed in all the children swollen tonsils and redness of pharynx, but no membrane or glandular swellings, and in the secretion taken from the tonsils of the boy last attacked only streptococci, but no bacilli found.

When the above cases presented themselves to me I naturally thought of the first group of cases, but the milder course and absence of bacilli upon the tonsils proved this suspicion to be premature. All of the above cases rapidly recovered.

The most puzzling set of cases are those affections of the tonsils in which with the ordinary symptoms of swelling of the tonsils with or without glandular enlargements at the angle of the jaw, we have as a single manifestation of diphtheria a single small speck of varying color on one or the other tonsil. It has been contended that this is in some cases almost characteristic of diphtheria. The following is an illustration:

Female, æt. three-and-a-half years, has in addition to other symptoms of tonsillar swellings a small speck green in color, the size of a pin's head, on the left tonsil; no glandular swellings. Several physicians examined this case at my request, and the general verdict was unsatisfactory. An examination showed its nature to be true diphtheria. Contrasted with this is the case of a boy, æt. seven years, with a small yellow spot not unlike a follicle on the left tonsil accompanied by fever, in which only streptococci were found.

I would not worry you with examples, but numbers sometimes are more convincing.

Boy, æt. two-and-a-half, croupy cough and breathing, swollen tonsils, membrane on the back of the right tonsil, and a spot on the post-pharyngeal wall; temperature 103°. Only streptococci found.

Another case in which I expected to get evidences of diphtheria was that of a female baby, æt. ten months, sick for four days with fever, has croupy cough and voice, no glandular swellings, small spots of whitish yellow membrane on each side of the uvula spreading up to the soft palate; nothing on the tonsils, the same are swollen. Only streptococci found.

Contrasted with this is the following virulent case in which the membrane had a very similar look to the above last mentioned case:

Boy, æt. two years, had had bronchitis and follicular amygdalitis for a week, and under my daily observation; nothing seen, though the throat was examined daily. Suddenly at night the child developed a croupy cough, and next morning when brought to me had stridulous breathing just perceptible. On looking in the throat a small line-like formation one-quarter of an inch long by about one-sixteenth broad was seen on the right tonsil, another upon the posterior pharyngeal wall; glands on left side swollen slightly. Diphtheria bacilli present. Death of inoculated animals. Death of patient in twenty-four hours.

The above, I think, will convince the sceptical that specks upon the tonsil are deceptive, and the method of diagnosing them with certainty lies only in the above direction of bacteriological methods. Not that I would maintain that all physicians in practice should follow these lines, for I am not prepared to argue this part of the question, yet it is easy to see how difficult a diagnosis in such cases must be when all characteristic clinical features are wanting to aid us, and those thought to be characteristic are shown to be unreliable. It has been maintained that the passage of a probe into a follicle will show the nature of the growth. I have seen this method tried on the adult by the very skilful, and seen it fail again on the babe it is more difficult. How are we to be certain that the follicle itself is not the seat of diphtheria. Fol-

licular appearances on one tonsil may be accompanied by true diphtheria, though was miniature membrane on its fellow, as is shown by the following case:

A male infant, æt. eleven months, with a history of having been well until the evening previous to the visit, was brought to my clinic with a cough, swelling of both tonsils, the right showing the follicles as white dots and streaks between the lacunæ, while on the left side these appearances were combined with a patch of whitish exudate. When the child was made to gag a few minute specks were visible on the posterior pharyngeal wall. The Löffler bacillus was obtained in pure culture from this case also.

Those forms of tonsillar inflammation which at certain stages result in ulcerations of the tonsils and necrosis of tissue are also very difficult at first sight to diagnose from comparatively innocent forms of sore throat or amygdalitis. In the cases I refer to the ulcerated patch is accompanied not only by a coating of yellowish or greenish yellow tint, but there are specks of exudate also on the tonsil elsewhere, and also on its fellow and the pharyngeal wall.

Boy, æt. ten months, well up to a day before the visit to me, then a sore throat and croupy cough developed. Both tonsils are ulcerated and covered with a yellowish deposit in places; there is a patch on the post-pharyngeal wall; croupy cough. Löffler bacilli and death of experimented animal, with characteristic post-mortem.

Again, a companion picture to this is the following :

Baby, female, æt. twenty-two months, well until week ago, then developed a cough. Since a day the cough has been supplemented by fever, both tonsils are slightly enlarged, small specks of yellow on both left and right tonsil, left has a necrotic hole (ulceration); no membrane. In the rooms back of her there had been diphtheria. This baby recovered. No membrane developed. Nothing found but streptococci.

From the above two cases it will be seen that though one process was more extensive than the other it would be unwise to point out diagnostic clinical points. The

first case was diagnosed by a good physician as simple ulcerated sore throat and was really diphtheria; the second, on repeated bacterioscopic trials, did not justify any diagnosis but that of simple amygdalitis. A very important point is brought forward by the histories of such cases as given by the parents. The parents will tell the physician, and I think truly as far as their imperfect observing powers will reach, that a child with a distinctly necrotic tonsil has only been sick twenty-four hours or less. This shows how symptoms must escape observation, and how really serious processes may be in full progress, and yet the children will give no symptoms even to the observant mother. This only proves to my mind the insidious nature of many of these abortive cases. It is difficult to see such necrotic excavations in a tonsil without concluding that the process must have taken days to develop. The croupy cough showing extension to the larynx or high fever alone seems to have brought the patient for further advice or even for the first time to a doctor. In the transactions of the congress of German physicians held at Wiesbaden, 1883, Gerhardt called attention to the so-called abortive cases of diphtheria in which no exudate was present, and Klebs at that time said that all forms of affection in which a fibrinous exudate was present were not diphtheria. At that time we listened to the clinician and pathologist, but heeded very little the warning expressed by them from their standpoint. The proof was very difficult, to-day it seems just within our grasp to be able to prove the deductions of these able men.

Escherich has found the virulent Löffler bacilli on the inflamed mucous membrane of the pharynx, which on the next day was coated with a delicate fibrinous coating, but at no time was there the typical picture of diphtheria. Such pathologists as T. Mitchell Prudden believe that diphtheria can exist without any membrane, and that the membrane is not to be looked upon as the pathognomonic appearance in all cases of true diphtheria. The reaction toward the Virchow school is it seems a very good and healthy one, and one which it is possible future inves-

tigations will foster and strengthen. We have lately seen that the presence of membrane is not at all pathognomonic of true diphtheria. (Bagineki.)

Hoffman and subsequently Löffler and Escherich, and in our own country Prudden and Welch, have insisted upon these facts. Surely such an array of authority must result in conviction. During my researches I have met four cases in which I have succeeded in isolating the pseudo-bacillus of Hoffman and others. In one of these cases a death from diphtheria had occurred in the same family five weeks previously, and the patient showed a whitish and yellow deposit, pultaceous on the tonsils; this deposit persisted for fully five days simulating thus true diphtheria. In another case in which this bacillus was found the tonsils were large and red, and there was a croupy cough very much as in the first set of cases of this paper. So it was with the third pseudo-bacillus case in which the tonsils were large and had what I cannot express better than by the term "cloudy coating" upon them. Here the cough was croupy and temperature 103° . In the fourth case there were large tonsils, follicular plugs, small and large, the plugs fell apart when removed as into crumbs. The bacilli from all of these four cases were isolated; they possessed the identical growth characteristics upon the various media; they grew on potato as an invisible dead white layer; they did not grow well upon gelatin below twenty degrees celsins; they grew a little more luxuriantly upon agar than the real bacillus. They appeared shorter and plumper than the real bacillus, but stained as it did with gram. Injected repeatedly in a large number of guinea-pigs it had no effect, it produced no local oedema.

Thus in this paper are presented a class of cases which are exceedingly baffling to the general practitioner, and I confess, should I be confronted to-morrow with cases presenting exactly similar appearances I should hesitate as to which way to turn in making a positive clinical diagnosis. I have refrained from picking out any *clinical* symptoms and insisting upon an analysis and acting

thereon. This has been done too often, and it seems must be fruitless. The only test is a serious investigation of the exudates themselves.

Must we then enter the sick-room and remove a piece of exudate and convey this to our laboratories to be investigated. This seems at the present time scarcely practicable in general practice except in picked cases. Moreover, the investigation of these cases presupposes an amount of bacteriological skill and judgment, the result of careful and time-robbing preparation. There is one thing, however, we can all do, and that is to isolate all cases which in any way impress us unfavorably. Our patient does not lose anything thereby, and our conscience is immediately absolved of all responsibility. When we are in possession of more data we may educate ourselves to the point of isolating our patients, and protecting others from all cases of acute infectious throat disease. I wish here to express my deep obligation to Prof. E. K. Dunham, of the Carnegie laboratory, for many kind courtesies extended to me in this work.

THE TWO FORMS OF DIPHTHERIA SOMETIMES DESIGNATED TRUE DIPHTHERIA AND PSEUDO-DIPHTHERIA—THEIR DIFFERENCES AND NATURE.*

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No disease has, in recent years, received more attention from the medical profession than diphtheria. In every country where there is a medical profession, its cause, nature, prevention and treatment have been investigated by the most distinguished physicians and discussed in the meetings of medical societies. Still it continues to

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extend and is everywhere recognized as one of the most prevalent, and at the same time the most fatal, of the contagious diseases of childhood. In New York City, the deaths from diphtheria in 1889 were 1,686; in 1890, 1,262, and in 1891, 1,361; exceeding by 2,086 during this period the deaths from that other common and fatal disease of children, scarlet fever. In Brooklyn the deaths from diphtheria in 1889 were 1,101; in 1890, 902; in 1891, 766; exceeding the deaths from scarlet fever by 1,784 in these three years. In London the mortality from diphtheria has been steadily increasing for many years. Within the registration metropolitan area it caused 953 deaths in 1887, 1,311 deaths in 1888, and 1,588 deaths in 1889, the latter number being 656 in excess of the average annual deaths in the ten years preceding 1887. These numbers would be largely increased if the deaths reported from croup, which is known to be in most instances due to diphtheria, were added to them (London *Lancet*, May 17, 1890). A recent French writer deplores the fact that the deaths in France exceed the reported births, and he regards the mortality caused by diphtheria as an important factor in preventing the increase of population. We read in medical journals of the prevalence of diphtheria in Brazil, Algiers and distant Australia. It has long been a dreaded malady in eastern Asia where, perhaps, it originated, and during the last year the complex prescriptions of the Chinese doctors for diphtheria, which have descended as heirlooms from past generations, have been published in a British medical journal.

Diphtheria being endemic in the medical centres, abundant opportunity is afforded to the most distinguished pathologists and most eminent clinical observers to investigate its character and ascertain its true nature, as well as to determine the most efficient prophylactic and therapeutic measures. It will be my purpose in this paper to state the important facts which have recently been discovered relating to the ætiology and pathology or nature of diphtheria, and also to describe the two forms of this disease which, though resembling each other in their gross

characters, nevertheless differ in important particulars, so as to justify the recognition of two forms or types.

The history of medicine affords abundant examples of the fact that at first two or more distinct diseases, if they have similar symptoms and a similar clinical history, are supposed to be identical. As time goes on, their differences become more manifest and they are finally regarded as distinct maladies. Measles and scarlet fever, previously believed to be identical, have in the present century been fully differentiated and the same may be said of typhus and typhoid fevers.

In like manner, it seems to me, that diphtheria has been so successfully investigated since 1883, and so much light thrown upon its nature, that henceforth no description of it can be full and accurate that does not recognize under this title two distinct forms or types of disease, having different causes and in some respects a different clinical history. It will be our purpose to describe, and so far as possible to differentiate these two forms of disease to which the term diphtheria is applied.

The inflammation occurring upon the fauces or other exposed surface, caused by highly irritating non-microbic agents, as steam, boiling water, ammonia, chlorine and cantharides, is often attended by the exudation of fibrine, but this inflammation, however close the resemblance, is obviously totally distinct from that caused by microbic action, just as a simple inflammation is distinct from erysipelas. No one knowing its origin would apply the term diphtheria to a pseudo-membranous inflammation having such a cause. Likewise necrosis or gangrene of the fauces not infrequent in severe anginose, scarlet fever must be distinguished from diphtheria although it may require the microscope to make the distinction. In the following remarks it is necessary to state some well-known facts, which may seem trite, in order to make our description complete. We will first consider the common form of diphtheria :

Diphtheria caused by the Klebs-Löffler bacillus, sometimes designated True Diphtheria.—The bacillus described

by Klebs at the Wiesbaden Congress in 1883, and subsequently isolated and cultivated by Löffler, and in the last five years by many other bacteriologists and experimenters in both hemispheres, is now known to be the cause of the common form of diphtheria. It has about the length of the tubercle-bacillus, but ordinarily more than double its thickness. It frequently has a granular appearance and is stained in two minutes by the violet of methyl. It presents aspects which to the experienced eye are characteristic. It often when stained by coloring matter, exhibits a more intense coloration of its extremities than of its central part, and sometimes its extremities are swollen or only one is enlarged, so that its shape is like that of a dumb-bell, or of a pear or gourd.

The Klebs-Löffler bacillus alighting upon the faucial or other mucous surface, or the skin denuded of its epidermis, obtains there a nidus favorable for its development and propagation, but it does not enter the interior of the system. It is not taken up by the lymph-ducts or blood-vessels and conveyed to the internal organs, except in rare instances. It remains localized upon the surface and produces there the characteristic inflammation. Acting solely upon superficial parts, it cannot in itself produce systemic infection or blood poisoning, but like as the venomous reptile or the bee, secretes a poison which it communicates by its fang or its sting, it produces a poison which is readily taken up by the lymphatics and blood-vessels and conveyed to every part of the system.

This virus, which is the active agent in diphtheria, producing systemic infection and death in the multitudes who perish from blood-poisoning, has been carefully examined and experimented with by Drs. L. Brieger and K. Fraenkel (*Berliner klinische Wochenschrift*, March 17 and 24, 1890). They say that it is destroyed by a heat above 140° and is evaporated at 122° . It is soluble in water but insoluble in alcohol. It is not precipitated by ebullition, nor by the following medicinal agents: sulphate of sodium, sulphate of magnesium, chloride of sodium, nitric acid and acetate of lead. On the other hand, it is

precipitated by concentrated carbonic acid, the ferrocyanide of potassium, acetic acid, carbolic acid and nitrate of silver. It has, says Brieger and Fraenkel, the following composition :

Carbon,	. . . . .	45.35
Hydrogen,	. . . . .	7.13
Azote,	. . . . .	16.33
Sulphur,	. . . . .	1.39
Oxygen,	. . . . .	29.80

When this virus is separated from the Klebs-Löffler bacillus by passing through the porcelain filter, and inoculated in rabbits and guinea-pigs, it causes death in the small quantity of two-and-a-half milligrammes to each kilogramme in the weight of the animal. Sometimes death does not occur until after weeks or months.

While the bacillus itself inoculated upon one of the surfaces causes a pseudo-membranous inflammation, this peculiar poison which it produces, separated from the bacillus by filtration and inoculated, does not cause a fibrinous exudation or diphtheritic pellicle, although it exhibits, when inoculated, a high degree of virulence. According to Brieger and Fraenkel it is allied in its composition to the proteids or albuminoids, and it resembles in its action ichthyotoxicon, the poison secreted by sea eels. The similarity of the poison of diphtheria to ichthyotoxicon, as regards its effects, was observed by Trousseau as far back as 1868. (See translation of Trousseau's Clinical Medicine, vol. ii., page 566.)

MM. Roux and Yersin, of the Pasteur Institute, Paris, state that their recent investigations have strengthened the belief that the Klebs-Löffler bacillus is comparatively innocuous, the poisonous principle produced by it being the active agent which renders diphtheria so fatal. This virus, according to Roux and Yersin, inoculated in dogs and sheep, causes paralysis similar to that resulting from diphtheria in children. They state that the virus separated from the bacillus by filtration, and injected under the skin of rabbits and guinea-pigs, was very fatal, but

introduced into the stomach it caused little inconvenience.

Experiments similar to those related above, and clinical observations confirmatory of the above views, have been made by many others, besides those mentioned, in Germany, France, Great Britain and the United States, so that the theory is as well established as any other relating to the ætiology of the contagious diseases, that the common form of diphtheria is produced by the Klebs-Löffler bacillus and its poisonous action upon the system is due to the virus which it secretes, or in some way produces.

It is well-known that the Klebs-Löffler bacillus has not only remarkable vitality, but remarkable power of propagation. Numerous instances have occurred in which objects infected months or even years previously have communicated diphtheria. Moreover, filthy accumulations of all kinds afford a nidus in which the diphtheritic bacillus is rapidly developed and currents of air or gases ascending from these beds of infection, convey it and propagate diphtheria. In a city like New York, in which diphtheria is established or endemic, its sewers extending many miles, are infected with the bacillus, and sewer gas escaping into apartments and inhaled by children, causes diphtheria in numberless instances.

Wherever diphtheria is epidemic or endemic, mild as well as severe cases occur, so mild in many instances that the affected children do not complain or complain but little, so that they are allowed to leave their homes and often mingle with other children. Hence, these walking cases that visit places where children congregate, as the schools and dispensaries, and call upon their playmates in unsuspecting families, are largely instrumental in disseminating diphtheria. Therefore, the action of health boards compelling the non-attendance at school of children living in domiciles where diphtheria is prevailing, is not only fully justified, but more stringent precautionary measures are needed. R. T. Thorn, lecturer on public health at St. Bartholomew's Hospital, says (*London Lancet*,

March 7, 1891) in his third lecture on diphtheria, that at Pirbright each time the schools were closed diphtheria practically came to an end, and whenever they were reopened it recommenced suddenly and in a severe form. This occurred without any obvious source of infection, although much care was taken to detect it.

Although the Klebs-Löffler bacillus is the recognized cause of diphtheria, certain accessory germs, mainly cocci, occur during the course of the attack in the pseudo-membrane, upon and in the inflamed surface, and also in internal organs if the disease be severe, having obtained a nidus favorable for their development in and upon the diseased parts. It seems a proper subject for inquiry, whether these germs do not aggravate the diphtheria, especially as they are taken up by the lymphatics and blood-vessels and carried to internal organs not reached by the Klebs-Löffler bacillus.

The Klebs-Löffler bacillus in healthy persons.—MM. Roux and Yersin (*L'Union médicale*, March 14, 1891) have found in the mouths of healthy children and adults a bacillus which, in a morphological point of view, is identical with the Klebs-Löffler bacillus. They found it not only at Paris, but also in a distant village situated near the sea, where diphtheria had not occurred within the memory of man. In this village Roux and Yersin found, in fifty children examined, this bacillus in twenty-six of the number. So far as they were able to determine, it did not differ from the pathogenic Klebs-Löffler bacillus, either in its individual form or in the form of its colony, but only in the number of its colonies. Instead of producing a considerable culture in the bouillon, it only produced a slight culture, hence, Roux and Yersin believe that this harmless microbe is none other than the Klebs-Löffler bacillus deprived of its virulence. They have been unable to produce its transformation into the genuine diphtheritic bacillus or the reverse, but they believe that this transformation is possible. This bacillus is found most frequently in benign diphtheria, and in persons recently cured of diphtheria. Such is the present status of knowledge re-

lating to the ætiology and nature of the common form of diphtheria.

Diphtheria caused by cocci, sometimes designated Pseudo-Diphtheria.—In a paper recently read before the Berlin Medical Society by Prof. Baginsky, and discussed by its President, Prof. Virchow, and also by Prof. Hensch, Drs. Guttman, Fraenkel, Ritter and others, Prof. Baginsky stated that he had made tube cultures from the false membranes of all the cases admitted with the diagnosis of diphtheria into the Hospital of Sick Children during the past year (*Berliner klinische Wochenschrift*, Nos. 9 and 10, 1892). He obtained a pure culture of the Klebs-Löffler bacillus in 118 out of 154 cases. In most of these cultures the microbes associated with this bacillus disappeared during the cultivation, while the bacillus multiplied, was typical, and was easily recognized. In the remaining thirty-six cases cultivation yielded no bacillus, but only cocci, and thirty-two of these recovered in a few days without any complication. Of the four who died two had empyæma, one pneumonia complicating measles, and the remaining one had a severe paralysis at the time of admission.

From these observations, Baginsky is led to believe, and those who discussed his paper, with perhaps one exception, seemed to agree with him in this matter, that there are two forms of pseudo-membranous inflammation of microbic origin, the one produced by the Klebs-Löffler bacillus being more severe and fatal than the other. The milder disease, Baginsky believes, is caused by the staphylococcus and streptococcus. Baginsky has also, like other observers, noticed that while paralysis is common after the diphtheria caused by the Klebs-Löffler bacillus, it is not liable to occur as a complication or sequel of the inflammation caused by cocci. Both the pseudo-membranous inflammations, that produced by the Klebs-Löffler bacillus and that produced by the cocci (staphylococcus, streptococcus) are, says Baginsky, accompanied by fever, tumefaction of the lymphatic glands and prostration.

The *American Journal of Medical Sciences*, April and May, 1889, contains a paper by Prof. T. M. Prudden, of the New York College of Physicians and Surgeons, giving the results of microscopic examinations in twenty-four cases of supposed diphtheria. In nearly all the cases the specimens were obtained from early autopsies and the microscopic examinations were made with thoroughness and with every possible precaution to prevent errors of examination. In no one of the cases was the Klebs-Löffler bacillus observed, either in the pseudo-membrane or in or upon the underlying and adjacent tissues, but the streptococcus was found abundantly in the pseudo-membrane and in the underlying necrotic tissue in all the cases except two. The second most common microbe was the staphylococcus pyogenès aureus or albus, which bore no relation, in amount or situation, to the extent of the pseudo-membrane. It seemed to have a closer relationship to the catarrhal than the pseudo-membranous inflammation. These carefully conducted examinations apparently indicated the streptococcus as the microbic cause of the disease, and Prof. Prudden consequently designated this microbe the streptococcus diphtheriæ. It is proper to add that nearly all the material from these twenty-four cases was obtained from those who had recently had scarlet fever or measles, or had been in wards in which these diseases had recently occurred.

The *British Medical Journal* for August 23, 1890, states that at a recent meeting of the Royal Academy of Medicine in Ireland, Dr. McWeeney related the case of a child that died of pseudo-diphtheria occurring in the declining stage or immediately after scarlet fever. The mucous membrane of the upper part of the larynx was found coated with a thin layer of greenish-grey pseudo-membrane. Sections showed numerous micro-organisms in masses, and disseminated through the membranous exudations. Some of these were cocci and others bacilli. The cocci were scattered or in pairs, and the bacilli were smaller than the Klebs-Löffler and were certainly not of the same species, as ascertained by the staining. The

absence of the Klebs-Löffler bacillus showed that the child died of pseudo-diphtheria and not of true diphtheria.

In the *Annales de l'Inst. Pasteur*, May, 1892, M. Martin has published an interesting paper based on the analysis of 200 cases, supposed to be diphtheritic. In seventy-two of these cases, twenty-nine of which were croupous, the Klebs-Löffler bacillus was absent. Exposure to scarlet fever or measles had occurred in some of the cases. M. Martin noticed the fact that the mortality was larger in the cases of true diphtheria than in pseudo-diphtheria; in other words, in cases in which the Klebs-Löffler bacillus was present, than in cases in which it was absent. The observations and statistics of competent observers like the above, appear to fully establish the theory of a pseudo-membranous inflammation of microbic origin, but not caused by the Klebs-Löffler bacillus. The causal agent of this inflammation when the Klebs-Löffler bacillus is absent, appears to be the cocci (staphylococcus, streptococcus). It matters little whether we recognize two forms or types of diphtheria, according to the microbic cause, or designate the two diseases by the terms true diphtheria and pseudo-diphtheria. We have seen that the inflammation caused by the Klebs-Löffler bacillus is the more fatal of the two, and that this bacillus produces a peculiar poison, which infects the system and causes the paralysis, the nephritis, and the rapid and dangerous deterioration of the blood, this effect being perhaps increased by accessory germs. On the other hand, in the inflammation produced by other microbic agency than that of the Klebs-Löffler bacillus, no such poison is produced. If the coccus generates any poison, it is certainly much milder and very different from that generated by the Klebs-Löffler bacillus. Hence, the two forms of pseudo-membranous inflammation of microbic origin differ widely from each other, not only in their ætiology but clinical history.

In the investigation of this interesting subject, certain clinical observers have very properly remarked on the difficulty of discriminating scarlatinal necrosis in some

cases from pseudo-membranous inflammation, and the liability consequently of vitiating the statistics of diphtheria. M. Sevestre, of Paris, says that the pseudo-membranous sore throat, which occurs in the course of scarlet fever, is commonly considered to be diphtheritic in Paris. It is, however, says he, a variety of sore throat which should be distinguished from the diphtheritic. It occurs in the first days of scarlet fever, when the inflammation is severe, commonly ends in recovery and does not communicate diphtheria. Prof. Henoch mentions the difficulty at the bedside, in some instances, of diagnosing scarlatinous necrosis from a pseudo-membranous inflammation. Sometimes, says he, the pseudo-membranous angina that occurs in scarlet fever, is really diphtheritic, but when diphtheria supervenes, the scarlet fever is well under way or in its declining stage. He adds, that only in such cases of pseudo-membranous inflammation in scarlet fever does diphtheritic paralysis occur. Prof. Henoch, also, evidently regards the scarlatinal necrosis as due to the intensity of the inflammation (*Münchener medicinische Wochenschrift*, October 22, 1889). Similar views were expressed by MM. Wurtz and Bourges (*Archives de médecine expérimentale*, May, 1890). They made microscopic examination of nine cases of supposed diphtheria complicating scarlet fever, and found the Klebs-Löffler bacillus only in two. In the seven cases, in which this bacillus was absent, they say that the appearance on the faucial surface, which was supposed to indicate the presence of diphtheria, occurred early, and they attributed it to the intensity of the scarlatinous inflammation. But in the seven cases in which the Klebs-Löffler bacillus was absent the streptococcus was present. The difficulty in making the differential diagnosis between scarlatinal necrosis and the diphtheritic processes is apparent when we reflect that in diphtheria of the fauces the mucous membrane is incorporated and destroyed in the pellicle that forms, and the pellicle and necrosed tissue have the same grayish-white color. The greatest difficulty occurs in making the differential diagnosis between scarlatinal

necrosis and pseudo-diphtheria, for the streptococcus, the supposed cause of the latter, is present in the former.

TWO TRACHEAL AND BRONCHIAL CASTS (DIPHTHERITIC.)*

BY F. HUBER, M.D.,

New York.

ETTIE L., eight years old, was brought to the office on a Monday evening, having been aphonic since the preceding day. Cough was croupy with stridulous respiration; moderate supra-clavicular and epigastric retraction. No membrane visible. Temperature not elevated. Patient was ordered to bed. Hydrarg. bichlor. corros. gr. $\frac{1}{100}$ every half hour ordered. Croup kettle with temperature steam to be employed continuously. Liquid diet.

Diagnosis.—Pseudo-membranous croup (diphtheritic). With the exception of an occasional mild suffocative attack, the progress was satisfactory during the first four days. On Thursday, following a severe spell of coughing attended with asphyxia, quite a large piece of membrane was coughed up. The voice now became clear and the dyspnœa was relieved for some hours. A return of the hoarseness and stridulous breathing showed that the membrane was being deposited anew. Friday morning another and larger piece of membrane was expelled. For the first time patches were visible in the pharynx. No cervical adenitis. Friday afternoon condition worse. Prof. Jacobi in consultation, confirmed the opinion that operative measures would be necessary later in the day. Up to this time the highest temperature did not exceed $101\frac{1}{2}^{\circ}$. At 7 P.M. I was hastily summoned as it was thought that the child was dying. Her condition had steadily grown worse, retraction above and below marked some cyanosis with labored breathing and restlessness. The progress of the case and the state of the patient led me to believe that the bronchi were involved, therefore a small sized tube (5-7 grs.) was used and introduced without any difficulty. As the breathing improved the thread was removed in a few moments and the child put to bed.

* Read before the American Pediatric Society, Boston, May 3, 1892.

Expiration was not as good as inspiration. Suddenly severe dyspnœa set in, the patient began to struggle and tug at her larynx ; she became blue, gasped feebly, the entire body grew rigid, jaws clinched, respiration ceased, and she fell back apparently dead. The jaws were quickly wrenched apart and the tube which fortunately had been partly forced out of the larynx by the struggles of the



CAST NO. 1. Coughed up after removal of intubation tube. (Reduced about one third.)

child, was quickly and easily removed by the finger. Hypodermics of brandy, spt. ammon. arom. and brandy for mouth, artificial respiration soon restored the patient. In a few seconds began to cough, bringing up a large tubular cast of the trachea and large bronchi. As the breathing was easy and the child quite comfortable, the

tube was not reintroduced. The improvement continued for a number of hours ; the following morning it became evident that the membrane was reappearing. The dyspnoea gradually increased, cyanosis recurred and in the afternoon (Saturday) as the symptoms were urgent it was decided to do a tracheotomy.



CAST No. 2. Coughed up through tracheal cannula. (Reduced about one third.)

Chloroform employed (Dr. Jos. Huber giving the anæsthetic). With Dr. C. E. Denhard's assistance inferior tracheotomy performed with but trifling hæmorrhage. The insertion of the cannula easily accomplished between the open blades of a Trousseau's tracheal dilator. Almost immediately the second and larger cast was expelled

through the tracheotomy tube, followed by a little blood and mucus. The dyspnœa disappeared and the breathing remaining good for about nine hours, then a recurrence of unfavorable symptoms showed that membrane was newly forming leading to a fatal termination twenty-four hours after the tracheotomy.

A brief consideration of the striking features of the case may not be without interest. In perhaps one in fifty times in my experience with intubation membrane was crowded down in sufficient amount to give rise to alarming symptoms. In the instance cited above, I am convinced that the accident did not occur, for respiration improved after the insertion of the tube. The expiration was less free than inspiration, when the thread was subsequently removed.

The diphtheritic membrane loosely attached (because of the anatomical character of the epithelium and the presence of numerous muciparous glands in the tracheal and bronchial mucous membrane) was thrown off in consequence of the irritation induced by the presence of the metal tube. The loosened cast surrounded the lower portion of the intubation tube and no longer supported by the trachea and bronchi collapsed ; as the air could not enter the alarming symptoms of suffocation occurred. This is the only instance in about two hundred cases of intubation in which this accident occurred.

The two specimens furthermore demonstrate the rapid formation of membrane. In this case nine to ten hours sufficed to produce these large casts. Prof. Jacobi has observed a case in which a complete cast formed in less than seven hours.

"The condition of the membrane depends to a great extent upon its locality, on the absence or presence of hyperæmia, of mucous follicles, of lymph-ducts, of either ciliated or pavement epithelium, of connective tissue." (Jacobi, *Treatise of Diph.*, New York, 1880.) "The trachea and bronchi contain a good many elastic fibres, less connective tissue, fimbriated epithelium, some lymph-vessels but no lymph-glands, and acinous muciparous glands in

large numbers. Wherever the pavement epithelium is abundant, the membrane is firmly adherent and imbedded into the mucous membrane. Where it is cylindrical and plenty of acinous glands secrete their mucus, the membranes are loosely spread over the mucous membrane, from which they can be easily removed."

"The large number of mucous glands in the larynx and trachea is unquestionably the reason why the lymphatic vessels of the mm. are not influenced by the overlying loosened masses and will not absorb; hence laryngeal and tracheal diphtheria have decidedly a local character and are so frequently devoid of constitutional symptoms."

The above extracts from Jacobi's work, explain the facility with which the membrane was cast off and also the absence of high temperature and other constitutional symptoms of infection for the first few days. These facts should not be forgotten; not infrequently in well marked and advanced cases I have seen the physician thrown off his guard by a low temperature and absence of systemic disturbances.

The unfortunate progress of the disease, my experience with intubation in this case on the preceding day, and the fact that the membrane was readily thrown off and of such large size induced me to resort to the secondary tracheotomy.

It may perhaps be suggested that it would have been wise to have reintubated immediately after the expulsion of the first cast shown. In reply I would state that as the breathing was free and remained so for hours, nothing would have been gained. I can recall a number of cases in which the expulsion of the tube was followed by the expulsion of tracheal casts several inches in length and in which as no more membrane was deposited recovery took place. One case particularly has impressed me. A child four years old was intubated after some trouble. The tube remained *in situ* a few moments and was coughed out. Twelve hours later as the dyspnœa recurred the tube was again introduced, remained in the larynx for about five minutes and was again coughed out, a tracheal

cast three inches long being ejected at the same time. Fortunately no other membrane formed and notwithstanding a severe nephritis the case went on to recovery.

DISCUSSION.

Dr. CAILLÉ.—The casts which have been presented are the best preserved I ever saw. I recollect the case of an older girl reported in the first transactions of this society, in which I distinctly heard a flap sound when listening on one side of the chest. I did tracheotomy at once and a very thick membrane came out. In older children you can occasionally hear this flapping sound when a large thick membrane is detached, and the presence of such a sound would be a contra-indication for intubation, though at the time I reported my case it was not considered a contra-indication.

I have been very much interested in the communications of Drs. Booker and Koplik. The subject of diphtheria has been before this society at every meeting and the more it is discussed the more interesting it is to me. Dr. Booker's investigations have been very carefully carried out and his results are in the direction of telling us in the future how to differentiate. Dr. Koplik has done good work, and we hope his experiments will enable us to distinguish between different forms of infectious diseases of the mouth and pharynx. I have on several occasions spoken on this subject before this society and in Berlin, and I have endeavored to impress one fundamental principle upon my hearers, first promulgated by Dr. Jacobi some thirty years ago. He said then that we were unable to distinguish clinically between contagious and non-contagious diseases of the mouth and buccal cavity, and what he said thirty years ago is true to-day. I am not a practical bacteriologist, but I have neither sympathy nor patience with men who will try to convince me at the bedside that they can distinguish clinically between contagious and non-contagious inflammation in the mouth or pharynx. We must look upon all these cases as contagious, and our immediate treatment is not affected or influenced by the present state of bacteriological knowledge. Our treatment is absolutely the same, and it is proper that this society should once more take this position.

There is one point as to the ætiology I wish to mention. It is my opinion that children of syphilitic parents are prone

to certain forms of pseudo-membranous affections of the mucous membranes. It is a well-known fact that the mucous membrane and blood-vessels in such children are very vulnerable. Now taking it for granted that such children are liable to contract such disease, we would understand what should be our treatment in such cases. Sublimations of mercury are of the greatest importance if used at the proper time. We get the *constitutional* and the *local* effect.

Dr. SEIBERT. — I have this morning learnt for the first time from Dr. Booker's paper that the pseudo-diphtheric affections of the pharynx and trachea may kill a child by laryngeal diphtheria in cases where the Klebs-Löffler bacillus is not found, therefore, I think we ought to discard the remark made by Baginsky that all membranes which do not contain the bacillus are "innocent." I think this is a very important point.

Dr. FISCHER. — Last summer while I was in Berlin, I saw the experiments of Dr. Baginsky carried on, and through his kindness I was enabled to learn what diphtheria was and what it was not. He allowed me to watch cases with him every day and from day to day, and I was allowed to see the new cases as they came in, to watch the method of collecting, diagnosing, and so on. I then began a series of experiments at the Hygienic Institute, based on what I learnt from him, which I finished in the bacteriological laboratory of the New York Hospital. These experiments were very carefully conducted and occupied almost a year, and I am still experimenting in the same direction. I read up as much of the literature as I could in the German and English languages, and I think that the paper I read at the German Medical Society of New York, where Dr. Jacobi was president, included most of the points. What Dr. Koplik has said in regard to the matter is not complete. As regards Dr. Baginsky's paper, what he claims is that when we find the bacillus in a membrane we then have diphtheria. I have found it necessary to examine very thoroughly a membrane some four or five times before I found the bacillus of diphtheria and was able to say whether I had a case of diphtheria or not. It is a fact that the bacillus is lodged in the older portions of the membrane. We very frequently examine the newer portions of the membrane. Children will not hold their heads properly, and unless we are very quick we are liable to have the tongue wipe off this thin membrane. This may happen three or four times. To

illustrate this, I examined three cases at the Willard Parker Hospital and those three cases were cases of diphtheria. In these three cases I found Klebs-Löffler bacillus, and cultures proved fatal to guinea-pigs and rabbits, and did not affect mice nor rats. And when we examine such a case on the first day we have very different results than when we examine on the fifth and sixth day. We cannot regulate our cases because we examine them as we get them. I think it is a mistake, though, to think it is a very hard thing to make a bacteriological examination at the bedside. I do not see why it should be considered any more difficult than it is to get some sputa in a phthisical case and make the examination. You can do it just as easily. Baginsky has reported a very large number at the Berlin Medical Society wherein he shows it can be done at the bedside and with advantage to the patient. If any gentleman tries this he will see how simple it is. Run your forceps over a Bunsen burner and slip off a bit of the membrane about the size of a pea. Run this piece of membrane over some agar-agar. I always have these agar tubes in my pocket. I can readily recognize them. The advantage which Dr. Jacobi brought out of isolation I wish to refer to. Dr. Jacobi said that many innocent cases turned out to be cases of diphtheria. That was the case at Berlin. Dr. Baginsky, at Berlin, was able to distinguish them at the bedside. I have seen this done myself.

Dr. SEIBERT.—I would like to ask a question. How would Dr. Fischer treat a case before his guinea-pig dies ?

Dr. FISCHER.—I do not think it takes such a long time to find out whether you have a case of diphtheria or not to deal with. The treatment is the same in the beginning. If there be any urgent symptoms requiring immediate attention I, of course, attend to them at once.

Dr. EARLE.—I want to express my deep gratitude at the great work which is being done by these gentlemen, particularly by those who read their papers this morning. I never heard papers similar to those read by the gentlemen this morning. It makes me wish I was twenty-five years younger without any other work, without a patient, all my time my own, that I could work with them. I have expressed that wish time and time again, and the only thing I can do now is to express in as public a manner as possible my appreciation of the work that is being done. The best thing I can do is to hire a few men to

tell me a few things, which they do not do as well as these gentlemen can. I have thought along this line for a number of years. I have never been able to tell the difference between a true diphtheria and one which in the course of two or three days can be demonstrated as a diphtheria. Some of the men say that I am in the habit of diagnosing homœopathic diphtheria and creating a great amount of trouble in a family. But I find I have been correct. I have simply stumbled upon it. I was right and the other gentlemen were wrong.

Dr. JACOBI.—I very much fear that when I speak of diphtheria here I shall have to repeat myself particularly in regard to those very points brought up to-day. The points regarding our occasional inability to make a diagnosis ; the points of preventing rather than curing ; the method of isolation, and so on. If I feel reluctant to speak on this subject it is because I have entertained (or not entertained) the profession these last thirty-two years on the same subject. I remember many of those things which were told us to-day from the papers I published in 1860, in 1868, again in 1874, and then in my book of 1880 ; then again in a paper on mercury in relation to diphtheria in 1884 ; again, in a few other essays. I allude to these in order to save myself the trouble of referring to them again. Again, in a paper in which I spoke of the distinction between diphtheria and so-called lacuna angina ; and again in a paper on the way in which adults with their apparently or actually mild cases will spread diphtheria all over the town and country. Now a number of the points I have heard alluded to I thought were settled, and I learn from the papers to-day that they are so considered. We hoped before this time, however, that bacteriologists would be able to give us a speedy answer to the question which is diphtheria, and which is not in an individual case, and that speedily ? That has not been accomplished yet. Therefore, as long as we are conscientious, as long as we know that doubtful cases may prove diphtheritic, we should isolate and treat these cases as though we decided they were undoubted cases of diphtheria.

Now, that has been the practice of my last thirty years, of Dr. Earle's many years, and of many other practitioners. But there are plenty of men who will not be cautious. Many men make diagnoses by the result of things. If the patient dies the case was one of diphtheria ; if the patient lives it was not diphtheria. I got this point from the papers, that the difference between a diphtheritic mem-

brane and a simple follicular affection is this, that the probe can be run into the deep follicle very often. This is doubted. Justly so. I doubt it myself. I never use that as an only means of making a positive diagnosis. Indeed, the very lacunæ and recesses may become seats of diphtheria. So far as contagion goes much of interest is introduced by Dr. Koplik. Many of us have seen in families cases where there was nasal diphtheria, laryngeal diphtheria, pharyngeal diphtheria and "follicular tonsillitis" simultaneously.

We shall all rejoice when bacteriologists will be able to tell us how to make a diagnosis within half an hour. You must find the method, gentlemen, whereby you can discover in the membrane you scrape off, the bacilli of diphtheria or be able to say that they are not there. The moment we have a suspected case of phthisis we examine the sputa and within fifteen minutes we are through with the examination. We want to find a way to discover the bacteria at once. Now you know bacteriologists have not yet reached that point. I am quite in earnest, and now let me say a word directly to Dr. Earle and to you. I am the last one to disregard the place of bacteriological investigations, but I will ask one of the gentlemen if his paper and contributions up to this time have anything but theoretical importance for us, not that I mean to say that theoretical importance is no importance; on the contrary, not one of us would be here but for his knowledge and practice. But as regards the disease diphtheria we are still where we left off.

I have a question to ask Dr. Earle. Dr. Earle says he would wish to be twenty-five years younger, without any practice—did not want any practice. He wants to sit down just as they are doing and study what they are studying. But Dr. Earle goes beyond them, wants to deprive himself of all the advantages of clinical knowledge. If he wants to be one of these here he wants at the same time to be like them, a clinical man. A correct observation is a correct observation all the world over. I know we make mistakes, but I also know that the microscopists and bacteriologists are making mistakes all the time. There has been a good deal of wrong seeing in all of the exact sciences, except mathematics. I remember the time about fifteen years ago when any young man would find a new bacillus in a half hour, and, therefore, expect to obtain immortality. What will become of us if no clinical observations are made? I claim that a good clinical observa-

tion is just as important and just as correct as a bacteriological investigation or observation. We require a great deal more in our clinical observations than they do with their bacteriological observations only. That is why you cannot be an expert clinician until you are forty or fifty years old, or at all events thirty-five, when you are a genius. Now, gentlemen, I am of the opinion, and I mean to be on record for this right here, because as I am the oldest amongst you, I may step out of this society the first, I would like to say that I appreciate and welcome every good stone to the building of medicine ; every big block that is contributed to the great edifice, and every good correct observation, and every good correct bacillus that is furnished us are welcome, but they are only blocks of which medicine is built. I will try to reconcile Dr. Earle to his sad lot. He has had a very hard time of it. He has only been a successful practitioner and become a great clinician. Now, I look upon the director of a hospital, a great clinician, one who has grown old in the practice of medicine and has derived a good reputation as a great student in medicine, as the very perfection of the medical man. Still, all those men who have contributed blocks are very welcome to-day. Every good anatomical observation, pathological find, bacteriological research, are each one of the blocks, one of the pillars of the great building. We cannot singly do everything at the same time, but if I were twenty-five years younger, as old as Dr. Earle is now, I would not sit down without clinical observation. The very fact that the gentlemen who have read papers here bring clinical observation before us also now proves that my position is the correct one.

DIMINUTION of early mortality depends upon avoiding diseases of the digestive organs by insisting on normal alimentation. That is particularly important in the first few months. While it has been shown that breast milk lowers the rate of infant mortality through the entire first year, it does so much more in the first few months. Thus, although infants may not be fed on breast milk through the whole of the normal period for nursing, very great gain is accomplished by insisting that they shall be nursed for at least a limited time, if only a few months. There are but few mothers but are capable of nursing during that brief period, and none but contributes to the illness or death of her baby by refusing to nurse it, at least

through the first dangerous weeks.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

Clinical Memoranda.

CERVICAL SPONDYLITIS: A REPORT OF FOUR CASES.

BY ROBERT JONES, F.R.C.S.,

Liverpool, England,

AND

JOHN RIDLON, M.D.,

Chicago.

THE following cases are selected for report to illustrate the various aspects of cervical spondylitis as seen in clinical work :

CASE I.—Female, five years old, had scarlatina in March, 1889. It was followed by stiffness of the neck, twisting of the head to the side, abscess on the right side of the neck which opened spontaneously, pain, restlessness and crying in sleep and on any sudden motion, and a diminishing appetite. When first seen, August 1, 1889, the head was drawn down towards the right shoulder and the chin twisted far to the left; the left sterno-mastoid muscle stood out prominently while the right muscle was far less prominent; the sinus from the abscess still continued to discharge; it was not possible to actively or passively move the head and any attempt caused much pain.

The patient was treated for two years with a modified Taylor spinal brace and chin-piece, and cured without deformity or restriction to normal motion.

CASE II.—Female, seven years old. In February, 1884, without known cause the neck began to grow stiff and the head to droop forward; there was no pain. When first seen, July, 1884, the chin rested on the chest, a sharp angular kyphos was present at the third cervical vertebra,

a small abscess was present under the right ear, and the head was immovably held by involuntary muscular spasm.

The patient was treated in bed by weight and pulley traction ; the abscess opened spontaneously after a short time, discharged for some weeks and closed ; the deformity and muscular spasm had disappeared at the end of three months. She then passed from under our care ; a spinal brace and chin-piece were applied and she was permitted to walk around ; some three years later the child was again seen by us : She was still wearing the brace and chin-piece, the sinus had reopened and was discharging, and the kyphosis had returned.

CASE III.—Female, three-and-a-half years old, fell from the arms of an older child about July 15, 1885, and three days later the neck began to be held stiffly, and the child to cry on being moved. The head gradually went backwards until it rested on the elevated shoulders ; she complained of pains in the hands and feet, could not walk, and refused to sit up. Somewhat later she cried and screamed on being moved, would not eat, did not sleep, and daily became thinner. When first seen, four weeks after the fall, the sufferings of the child were terrible ; the slightest movement caused screams of pain. The head rested on the shoulders and was rigidly held by muscular spasm ; there was complete motor paraplegia of the lower extremities and partial motor paraplegia of the upper extremities, but the bladder and rectum were unaffected.

She was treated in bed by one-pound weight and pulley traction for nine weeks, at which time all symptoms had disappeared. She was then allowed her freedom and walked around without further treatment. Five years later she was examined : There had been no return of symptoms, and the motions of the neck were normal in extent and in all directions.

CASE IV.—Male, sixteen years old. Without known cause the neck began to grow stiff in April, 1891, the head to project forward and the chin to approach the chest ; there had been pain in the back of the neck extending up the back of the head, but the pain did not awake him at night. When first seen, at the end of four weeks, he presented an anxious face, walked with the head projected forward to an extreme degree, and the chin resting within an inch of the chest ; he could not move the head nor could it be moved passively ; the muscular spasm was intense, but he did not complain of pain on careful examination. Manual

traction for half an hour with the patient resting on his back reduced the malposition. A Thomas collar was then applied with the chin raised somewhat above the normal.

At the end of two weeks' rest in bed the head could be moved normally and without pain or muscular spasm, while resting in the horizontal position with the collar removed and held in the erect position when standing. He was then allowed to go about ; at the end of six months the collar was removed ; at the end of a year there had been no return of symptoms.

A CASE OF PARTIAL ACEPHALORACHIA.

BY CHARLES H. BUSHONG, M.D.,

Attending Physician to the Midnight Mission, of New York City; Attending
Physician to the Northern Dispensary; Assistant Gynæcologist to
the Demilt Dispensary, etc.

MAY 31, 1892, I attended Mrs. A. F., aged twenty-eight years, in her first confinement. She was an apparently healthy young woman, though slightly anæmic of blonde type, and fairly well nourished. Her pregnancy had passed without incident. She remarked that the infant in the uterus was quite active. Her abdomen was very large and reached well up to the ensiform cartilage.

Pains were strong, and every eight minutes when first seen in labor. Examination revealed a well dilated os and a large, soft "bag of water." The absence of the hard, rounded head was noted on pushing up the membrane with the examining finger and a malpresentation was thought of.

After ten minutes with more rapid pains a second examination failed to find the head, and it was thought best to rupture the sac to find the true presentation. If turning was required it could best be done before the presenting part became too tightly engaged in the bony pelvis.

A smart push with the finger nail broke the membrane and an exceedingly large quantity of amniotic fluid came

away. The woman and bed were deluged and much fluid ran on the floor.

The woman was removed from the bed and fresh, dry clothing put under her. A dry night-gown put on her and well rolled up under the shoulders and armpits. This took less than ten minutes during which time she had no pains.

On being put to bed, she was immediately examined and a peculiar presentation at once recognized. The presenting part was entirely unique. The first impression was that it was a breech, and the whole hand was gradually introduced into the vagina and thence into the uterus to draw down a foot. The ears were first made out as very prominent, then the shoulders were felt and recognized and shifting of the hand revealed the feet and hands, all in position of a normal right occipital posterior presentation. There was evidently some malformation about the head. The foetus was alive and movements were strong and frequent. The hand was at once removed and pains soon became expulsive. Birth was completed in about an hour from time of the first examination.

The child was asphyxiated when born and never breathed. The placenta was removed in about ten minutes after birth and was normal in every respect.

The foetus was a female evidently at full term and well developed in all respects except the head and spinal column. The face was complete and perfect to the eyes. The orbits lacked only that portion of their bony roof and sides formed by the frontal bone.

The upper eyelids were complete and extended back as a true skin about one inch posterior to the back of the eyeballs, which were prominent. This portion of the head presented much the appearance, excepting the color, of a frog, with the eyes closed.

The ears stood up a half inch higher than the highest part of the head and were normal, but the side of the skull stopped at the upper edge of their attachment to the head.

The mastoid process of the temporal bone was complete, but that part of the squamous portion above the ridge was wanting.

The frontal bone was entirely wanting. There was no vestige of either parietal bone. The occipital bone lacked all that portion posterior to the foramen magnum. The rectangular jugular processes were prominent at either side, their intra-cranial surfaces only covered by a thin membrane.

The spinal column was in the same state, each vertebra lacking all that portion usually found posterior to the cord. The bony canal presented the appearance of having been divided by an incision from side to side and extending to the third lumbar vertebra. Each vertebra being without its spinous process and lamina. The sacrum was normal.

The brain seemed of normal size and the spinal cord was apparently normal. The only posterior covering to either was a very thin transparent membrane.

The convolutions of the cerebrum could be plainly seen and the cerebellum was easily made out. The spinal cord and its branching spinal nerves were in view.

The true skin was wanting for a strip about three inches broad from the neck to the lumbar region revealing the dark muscular tissue through the transparent membrane, its sole covering.

The gross appearance was that of a dark stripe down the back from the head to the sacrum.

The only hair was a small tuft behind each ear. The eyelids, lashes, nose and mouth were well formed and normal.

No autopsy was allowed, hence the condition of internal organs is unknown. They were probably normal, as the foetus was alive when labor began and well nourished when born. The pressure upon the brain and cord in the parturient canal probably caused death.

The mother made a speedy recovery and is now well. The father is in good health and free from syphilitic or other dyscrasia.

Clinical Lecture.

GERMAN MEASLES?*

BY CHAS. WARRINGTON EARLE, M.D.,

Chicago.

BENSON T., æt. six-and-a-half years, was taken with evidences of slight cold, suffusion of the eyes, slight sore throat and some vomiting. In twenty-four hours an eruption covered the upper part of his body, unlike scarlatina, but in many respects resembling measles. During the height of the eruption the temperature was one-half to two degrees above normal, the pulse only slightly accelerated and the cough only moderately troublesome. Indeed, the child is just comfortably sick, but the study of the symptoms are of importance to us particularly in the establishment of a diagnosis.

In view of the fact that it is generally known that we are passing through a mild epidemic of German measles, I need hardly say to you that I believe this to be a case of that disease.†

* Delivered at the Woman's Medical College, Chicago.

† In seventeen days after the presentation of the above case, the nurse who had charge of the lad, consulted me at the office with the following symptoms: She had been feeling somewhat badly for three days, with headache, vomiting and without an appetite. She had some slight catarrhal symptoms; but no cough of consequence. Her eyes were red and watery, and the vomiting was unusually severe, although her tongue was clear and moist. I found an eruption on the upper part of the body similar to that which appeared on the little boy. This eruption covered the upper part of her body in eight hours after it first began to make its appearance. It extended over the face, neck and to her waist, and down to her wrists. The glands back of her ear were found slightly enlarged, she was perspiring freely, and had a temperature of 101.2° , pulse 104. She had had measles when a child.

I present this second case more particularly to illustrate the time of incubation of this disease, which I believe to be pretty generally about seventeen days.

This is a malady with which up to within a few years we have had only a slight acquaintance. While it has probably been described by some of the older writers, we have read comparatively nothing concerning it in our literature until within the last few years. In the early writings of Prof. J. Lewis Smith, he does not speak of it, but in those of recent date he does. It was first noticed in this city during 1879 and 1880, when it prevailed as an epidemic, not only here but throughout the Northwest. Reports of it were sent in from Missouri, Indiana, Michigan and Nebraska, and we were able to study it at that time very carefully, and since then as an occasional case has occurred. During the last few months we have had another epidemic, moderate compared with the one referred to in 1879 and 1880, and in all probability in some cases mixed with the infection of scarlet fever. In the current year, March 26th *Medical Record*, Dr. Mettler, of this city, records a case which presented decided characteristics of German measles, scarlatina and influenza.

In German measles in my judgment, we have a disease which occupies about the same relation to common measles and scarlatina, that varicella does to variola. It is an acute specific exanthem and its diagnosis is its most important question for us to consider. The salient points in its differentiation are about as follows: A mild exanthema taking place in a patient who has possibly had measles and scarlet fever, with a very short prodromic period, moderate coryza and conjunctivitis, mild if any bronchitis, a papular eruption covering the upper part of the body in a very short time, with but very little fever and with little if any acceleration of pulse.

Diagnosis.—It is liable to be confounded with variola, varicella, scarlatina, measles, erythema, urticaria, rubeola and roseola. In the first epidemic through which we passed, the health commissioner of our city was applied to many times to assist in the diagnosis of the disease under consideration, and variola. The absence of the most of the severe symptoms referable to the nervous system, that is, a most severe head and backache, the ab-

sence of the vesicle or water blister, upon which you must base your diagnosis of the variolous diseases and the disappearance of all symptoms within a few hours, dispel, it appears to me, all doubts as to whether the disease is either variola, varioloid or varicella. In these diseases there is a papule, but within a very short time it becomes a vesicle and there is such an exacerbation of symptoms in variolous diseases, continuing for ten or fourteen days and such cessation of symptoms in German measles usually at the end of twenty-four or forty-eight hours, that the diagnosis can usually be very easily made. In varicella the symptoms are all usually mild, you have the papule, but speedily a vesicle, usually by the time you make your first visit. In scarlatina we have vomiting and fever for two or three days and then the rash, not a papular eruption, but a rash. In German measles, as I have said repeatedly to you, we have no prodromic period of any extent, but the eruption makes its appearance within a very few hours after the development of the very slight symptoms which might be called the prodromic period, if any at all precedes the eruption. In many cases too, you will find that scarlatina has already taken place and that the child has had common measles. In common measles we have a prodromic period of usually three days, symptoms indicating a severe coryza, more or less laryngitis, followed by bronchitis, to which we pay particular attention throughout the disease. Unless the attack of common measles is *very mild* and the attack of German measles *very severe*, you will have but little trouble in differentiation. In measles we have all of the symptoms of an acute and profound bronchitis with the involvement sometimes of other mucous membranes. The eruption is two or three full days in going over the entire body, while the eruption in German measles usually occupies only a few hours. In measles all the physical signs of a bronchitis are present, in German measles they are nearly absent, although I should say that in a few cases, and this was true of the case I present to you to-day, a considerable cough has persisted for two or three weeks. The incuba-

tion in measles is pretty uniformly eight or nine days, in German measles it is almost twice as long.

An erythema is simply a diffused redness, sometimes occurring in spots and patches and usually due to some digestive or nutritive error, or to a purely local cause, more particularly in children, in my experience, it is due to indiscretions in diet. Frequently you will find after a child has partaken heartily of unripe peaches or has taken a half dozen bananas, or has eaten cheese and radishes—and the American child has access to all of these,—you will find fever, sickness at the stomach, and the body covered with redness, which disappears in a few hours; this may be and probably is erythema. It is a different redness or a redness in patches. It is not a vesicle or a papule.

Rubeola is simply another name for measles and I will not stop to discuss its diagnosis. In my judgment many of these names which mean the same thing, should be expunged from our medical nomenclature.

Roseola is a disease to which I desire to call your attention for a few moments. It is usually seen in the course of digestive difficulties in children, and much of that which I have said in regard to erythema may be repeated in this connection. It is a redness, a hyperæmia, not a vesicle or a papule. It is absolutely without symptoms referable to the eyes or mucous membranes and is very frequently the result of indigestion.

Contagion.—That German measles is contagious, there is not a particle of doubt. What its contagious principle is must remain at present *sub judice*.

Incubation.—I have already narrated a case to demonstrate the length of incubation. In my judgment it is almost always seventeen days.

Age.—It affects both adults and children. In the epidemic through which we have just passed (1892), it has been noticed more particularly in children. In the epidemic of 1880 adults were frequently attacked by it.

Symptoms.—I have said that there was a very short, if any prodromic period. This is especially true in children. In adults I have noticed slight chilliness, languor, and

pain in muscles, and patients who were old enough, complain that the surface of the body feels warm. In children, the first symptom which the people notice is the eruption, the slight prodromes referable to the respiratory apparatus being so slight as to escape notice, or is regarded of no consequence. In a large number of cases the children have retired in perfect health at night and the eruption is present at its height in the morning. It frequently disappears in one or two days, indeed, a single visit to establish a diagnosis is about all that is necessary. Vomiting does not take place with the frequency that it does in common measles, and not at all as it does in scarlatina, although in the present epidemic this symptom has been more severe than in the previous one. The pharynx is sometimes red, as is the roof of the mouth, but the redness is more of a papular nature and is not as smooth as you will find in scarlatina. In the majority of cases one or more glands back of the ear are swollen. In a previous epidemic I spoke of the enlargement of the post auricular gland as being pathognomonic of the disease. I believe now that the enlargement of this gland is of value taken in connection with other symptoms. The eruption is upon the upper part of the body and spreads with rapidity. It is a papular eruption, smaller than measles, not a rash. Pulse and temperature are not increased to such an extent that it is worth while to pay any attention to these symptoms. I think the range of temperature is from one-half to two degrees, and when higher shows some complication. Bronchitis of moderate severity takes place only rarely, and pneumonia less frequently. The different forms of stomatitis particularly when nutrition is bad, is common, and in a few cases gastro-intestinal catarrh. Urticaria has been noticed in two or three cases, indeed, it is somewhat frequent during the first hours of the eruption.

To sum up then in regard to your diagnosis. If you find a child who has had both scarlatina and measles, and who was well twelve hours ago, but now has symptoms of a hard cold with an eruption similar to measles, the case is

probably one of German measles. There are hardly any premonitory symptoms and they are trivial. The eruption is of short duration, but what you observe is more like measles than any other disease; remember that usually you will find but little fever and but slight acceleration of pulse.

Desquamation.—I have noticed a slight furfuraceous detachment in a few cases, especially about the nose; but it does not take place to any general and marked extent. The remark of Dr. Smith that it usually disappears without desquamation, agrees with my observation. Vogel also says the desquamation which succeeds is very slight, barely noticeable.

Treatment.—In many cases none is needed, as I remarked early, it is the diagnosis that we desire to establish. For the pruritus which is sometimes quite marked, the camphorated oil is excellent, or equal parts of lycopodium and boric acid. If the pharyngeal membranes are inflamed, any mild disinfectant will be serviceable and will possibly prevent infection with some other disease of greater severity. Alcohol and water, chlorate of potash and some mineral acid to which a mild astringent can be added is also useful. Sometimes it is necessary to advise some mild medication for an irritable cough. Let it be simply a little lemon juice and glycerine to which possibly a few drops of spirit may be added or a proper dose of ipecac and paregoric.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Woodbury, Frank, (Phila.): Papoid in Infantile Indigestion. (*N. Y. Med. Journ.*, 1892, lvi., 117.)

Papoid not only readily peptonizes cow's milk, but the resulting curds are also soft and flocculent, resembling those of breast milk.

Mallins, H., (Walton): Diphtheria Arising from Faulty Drainage. (*Lancet*, 1892, i., 579.)

The case was that of a boy ten years of age, who was attacked with membranous sore throat, followed in a few weeks by almost universal paralysis, a circumstance that proved its true diphtheritic nature. The boy slept in a small room directly over the scullery, and for weeks past a most unpleasant smell had pervaded this room. The scullery sink was found to communicate by an untrapped—in places broken—pipe with a cesspit situated about twenty-five yards from the house. There was, therefore, every opportunity for the foul air from the cesspit to be syphoned into the house. The patient was carefully isolated, and though one of a very large family of children no one else caught the infection. As there was not a single case of the disease in the neighborhood, as the boy did not mix with any children except his own brothers and sisters, and lastly, as he was the only one in the family sleeping in the line of escape of foul air, the conclusion seems irresistible that in this case, at all events, the diphtheritic poison was conveyed in the emanations from a foul drain, such emanations polluting the air that was nightly breathed. How the specific bacillus got into the cesspit is, of course, a very difficult matter to explain.

Smart, E. N., (Humphrey, Neb.): *Treatment of Membranous Croup and Laryngeal Diphtheria*. (*Omaha Clinic*, 1892, v. 10.)

Advocates the use of an occasional emetic of turpeth mineral, and five to twelve grains of iodide of soda every one, two or three hours according to circumstances. He reports twelve cases, six of which recovered, and gives the details of one fatal case and the six successful ones.

Sutherland, G. A., (London): *On Some Symptoms Associated with the Uric Acid Diathesis in Children*. (*Brit. Med. Journ.*, 1892, i., 856.)

Ten cases are reported, and the symptoms classified as follows:

1. *Symptoms due to the presence of uric acid in the system*.—The subjects of the diathesis are often easily recognized. They have keen precocious minds and small restless bodies; they are excitable, nervous, bright and amusing at one time, and greatly depressed at another; they sleep poorly, and have a depraved appetite. They are subject to colds and a chill is usually the precursor of an acute attack. There is a tendency to profuse sweating and cold hands and feet are frequently complained of.

The pharynx is often relaxed and irritable. The tonsils and adenoid tissues of the naso-pharynx are liable to acute attacks which lead to chronic thickening and enlargement. Frontal headache and symptoms of intestinal catarrh with a furred tongue and foul breath are common. As regards the heart a slight irregularity is occasionally found, and the pulse is often small, weak and irregular. The liver and spleen may be enlarged. In some cases abdominal pain is the only complaint, and this may sometimes be found to be localized in the right iliac fossa.

2. *Symptoms due to the excretion of uric acid from the system.*—Pain is one of the most prominent symptoms. Renal colic is far commoner in children than is usually supposed, but it passes for stomach-ache pure and simple, and goes unrecognized. The pain may be present in any part of the urinary tract from the kidney downwards. The pain is intermittent in character, and is often so intense that the child will scream loudly, especially in the middle of the night. Hæmaturia (renal) is frequently the first symptom to cause alarm, and there may be more or less shivering, nausea and sickness present during an attack.

Many cases of intractable incontinence are due to inflammation in the bladder, which is induced and kept up by the excessive acidity of the urine. Rectal pain, incontinence of fæces, pain during defecation, prolapse of the rectum, and irregularity of the bowels will often be cured by directing treatment solely to the condition of the bladder and urine. This may be confirmed on rectal examination by the tenderness which is found on pressing forwards over the lower part of the bladder. Albuminuria is not infrequent, with or without hæmaturia, and is produced, like the latter, by mechanical irritation of the kidneys. A large deposit of urates is a "storm signal," and these storm signals are of very great use in this latent disease. One case reported is that of a girl, aged ten years, who was apparently in good health, but whose urine contained urates and uric acid in such abundance as to attract special attention. This was soon followed by an attack of tonsillitis, pericarditis with delirium, endocarditis, and a very severe chorea.

II.—MEDICINE.

Dudley, J. W., (Boston): Observations on Albuminuria in Scarlatina. (*Boston Med. and Surg. Journ.*, 1892, cxxvi., 138 and 160.)

These results are based upon a comparison of 100 cases of scarlet fever. Albuminuria was present at some time during the disease in forty-nine per cent. of all the cases; it was slightly more common in males than in females. Early albuminuria maintains a pretty constant relation to the temperature, being of much more frequent occurrence in cases with high temperature. It was present much more frequently in adults than in children when the temperature was the same, and of almost universal occurrence in adults with high temperature; it does occasionally occur in cases with low temperature; overcrowding and poor ventilation were not factors in its production. Early albuminuria occasionally is caused by or leads to renal catarrh, very rarely to severe nephritis; catarrh is not apt to be developed into severe nephritis.

SEVERE NEPHRITIS.

In eighty per cent. of all cases of scarlet fever.

Is most common in children under nine years of age.

Least common time, eight to eighteen years of age.

Sixty-two-and-one-third per cent. in males.

Rather more common in winter than in summer.

Is not influenced by the number of cases in the hospital (overcrowding and poor ventilation).

Is as common after mild as after severe cases of scarlet fever.

Generally begins between third and fourth week of the disease

Generally during desquamation.

Common duration five weeks.

RENAL CATARRH.

In ten per cent. of all cases of scarlet fever.

Occurs with equal frequency with children and adults.

Least common time, eight to sixteen years of age.

Seventy per cent. in females.

Season has no influence.

Idem.

Ninety per cent. in severe cases.

Most common in first week.

Most common time before desquamation.

No regularity of duration.

Complications.—Excepting renal catarrh, *otitis* is the most frequent complication of scarlet fever, occurring in ten per cent. of all the cases. It is as common in mild as severe cases of scarlatina. It sometimes begins early, but usually not till the period of desquamation and sometimes very late. Sixty per cent. of cases with *otitis* have albuminuria, twenty per cent. nephritis.

Most of the cases complicated by *diphtheria* present albuminuria. Nephritis is not especially common. Of the other individual complications no summary is needed.

It should be said that the proportion of cases in this series presenting albuminuria is larger than is generally supposed to occur, but the percentage of cases with

nephritis agrees very closely with that observed elsewhere.

Lee, W. R., (Barneston, Neb.): *Scarlatina sine Exanthemata*. (*Med. News*, 1892, lx., 186.)

The first case was a girl, seven years old, with a pulse of 140, and a temperature of 101.8°F. The tongue was covered with a thin, moist, white coating, except for a quarter of an inch at the edges, which were red and slightly swollen; scattered over the white surface, within a quarter of an inch of one another, were small, red, swollen points that gave the tongue a characteristic "strawberry" appearance. The throat was swollen and painful on swallowing solid food. There was slight tenderness of the submaxillary glands. A few points of redness appeared about the neck on the morning of the second day, but not enough to be characteristic. In all, eighteen cases (six adults and twelve children) were seen, they presented similar symptoms, varying only in minor points, but in none of the cases, except the first two, was there anything that even resembled the rash of scarlatina.

The diagnosis was based upon the following reasons: The epidemic character of the disease, eighteen cases in the writer's practice and four in the practice of other physicians, in a community numbering not over five hundred souls in all.

Its contagious character: The disease ran through three families, and in four of the cases, in as many different families, it was possible to trace contact with the families in which the disease was prevalent.

The unusual similarity of the symptoms in all of the cases, presenting so many of the lesions of scarlatina, notwithstanding the absence of the rash.

The corroborative evidence found in the sequelæ.

Carpenter, J. S., (Pottsville, Pa.): *A Case of Paralysis following Measles*. (*Med. News*, 1892, lx., 183.)

The patient was a girl, three years of age, who had a mild scarlatinal trouble, from which she had entirely recovered three weeks prior to the attack of measles. At no time was there any evidence of diphtheria. When convalescent from the measles, the first attempt to walk, however, revealed an inability to lift the right foot, which was dragged after its fellow in efforts at progression; the same motor disturbance was discovered to have affected the right arm; the loss of coördination was shown in the child's attempts to pick up small articles from the floor,

the hand not only being unable to grasp the object, but being projected forward with some violence, or to either side of its destination, and finally when anchored safely at the objective point, after successive trials, the sound member was called to the aid of its palsied fellow to secure the desired article in full possession. There was no aphasia.

The treatment pursued was the administration of strychnine in ascending doses, beginning with gr. 1-98 and reaching to as large a dose as gr. 1-16, three times daily. Recovery was complete.

Gemmell, William, (Glasgow): Menstruation During Measles in a Girl Aged Nine Years. (*Brit. Med. Journ.*, 1892, i., 502.)

The onset of the measles was December 5, 1891, and five days later it was found that during the night there had been a discharge of blood from the vagina, amounting to about half a drachm, and on examination of the fluid by the microscope showed it to consist chiefly of blood-corpuscles, squamous epithelium and *débris*. This discharge continued to take place each day regularly for five days, and it gradually ceased as the eruption faded. The rash was very pronounced in the acute stage, and the staining after its subsidence was well marked. The patient was dismissed well, and inquiries showed that there had been no renewal of the discharge from the vagina since the subsidence of the measles rash.

Skyrme, H. E., (Cardiff): Case of Hemiatrophy of the Face. (*Brit. Med. Journ.*, 1892, i., 654.)

The patient is a female, aged seven years, with good family history. The child has never had typhoid fever, measles, nor acute rheumatism. The face was quite natural at birth and remained unaltered until she was three years and six months old. When three years of age, she got her head jammed in the bars of an iron gate, with an iron spike pressing under the chin, the head being rotated to the left and looking a little back. Nothing wrong was noticed till six months later, when there appeared just below the right eye a depressed yellowish seam on the cheek; the lower teeth then began to fall out, and the cheek to fall in, the atrophy extending and implicating the skin, subcutaneous tissue, muscles and the upper and lower jaw of the right half of the face, giving the face the appearance of being made up of halves of different individuals, and the smallness of the jaw-bones

making the affected side look smaller than the healthy; the ala of the nose is smaller and the lips thinner on the affected side; the right half of the tongue is wasted. There is no change in the palate; taste and sensation are unaffected, and the muscles have undergone no change. The child is subject to attacks of migraine.

Beale, G. B., (Tottenham): Hyperpyrexia in Influenza. (*Brit. Med. Journ.*, 1892, i., 653.)

The case was a child, aged eighteen months, with influenza. The mercury reached the highest point possible, the thermometer being only capable of registering up to 110°. The child was comatose and the respirations very rapid and shallow. The temperature was reduced by the cold pack and by antifebrin, and the child made a good recovery.

Carr, Walter: Splenic Anæmia in Children. (*Brit. Med. Journ.*, 1892, i., 336.)

The paper was based upon thirty cases of splenic anæmia, varying in age from two months to two-and-a-half years. They were usually wasted and more or less anæmic, and the spleen was always enlarged. Frequently the liver and internal lymphatic glands were enlarged. Hæmorrhages and irregular attacks of pyrexia occurred in the more severe cases. The red corpuscles varied in number from thirty-two to seventy-eight per cent. of the normal, and the hæmoglobin value of the individual corpuscles was deficient, the white corpuscles were only slightly in excess. Ten of the cases were known to have died, six could not be traced, thirteen had recovered or were improving, and one remained *in statu quo*.

The connection of the disease with ague, congenital syphilis and rickets respectively was discussed. It was argued that splenic anæmia must be due to a separate cachexia, to which syphilis and rickets predisposed, but which required some further definite exciting cause for its development, and that this theory of its origin would account for the similarity in clinical course and pathological appearances observed in all the cases whether rachitic or syphilitic; and also for the absence of improvement under the treatment usually beneficial for the two latter conditions. In treatment, mercury, arsenic and quinine appeared entirely useless, but improvement sometimes resulted from large and increasing doses of iron.

Crocker, George, (Belfast): Complete Subcutaneous Emphysema. (*Brit. Med. Journ.*, 1892, i., 332.)

The patient, a little boy, between five and six years old, presented, when first seen, the following appearance: His neck, cheeks and chest, arms, legs and trunk were swollen to an enormous size, so as to resemble a series of huge bladders. His eyes were quite closed up, and his head and neck formed a uniform inflated mass. The scalp was blown out in front and at the sides; the chest and back bulged out like great air-cushions, which sank in on pressure for over an inch. The scrotum was inflated to the size of a large ostrich egg. Audible crackling could be elicited all through.

It was learned that the boy had whooping-cough, and that after a fit of coughing his neck below the jaws became a little swollen. The swelling increased, and within two days his appearance was as above described. The most inflated part of the chest was punctured, but the amount of air that escaped was inappreciable. He was in a very weak condition, with faint whiffy breathing, sordes on the teeth, and extremely small pulse. He died three days after. The air seemed to have traveled by way of the mediastinum into the neck, and from thence over the whole body.

Ullmann: Observations on Whooping-Cough. (*Arch. f. Kinderh.*, 1891, xiv., 19.)

In a long, careful study with particular reference to the use of bromoform and sulphurous acid the author concludes: The improved cases under treatment by bromoform or sulphurous acid showed themselves equally under treatment by other and indifferent means and the cases which did badly were not prevented by either means. The length of the illness was as little shortened and recurrences as little hindered as ever. Complications of every sort occurred and the course of the same was not influenced. The mortality was not increased. The sulphurous acid perhaps through its irritating effect many times did harm. Bromoform perhaps as a narcotic somewhat unfavorably influenced the general condition of the younger children. The purpose of the author's work is stated to be not alone the decision of the worth or worthlessness of particular therapy, but to point out again what seems always to be again doubted, that whooping-cough is an entirely typical disease, that no law as to its course can be made. By the lack of care in observing and recording cases, and by the lack of control experiments by

the use of other and indifferent remedies at the same time, and finally by the neglect of the factor of the severity of the case and of the epidemic, is explained how ineffective methods are recommended as useful and at the same time is explained the general agreeing in the results.

Jeanselme: Hæmoptysis by the Perforation of a Blood-Vessel in the Course of Ta racheo-Bronchial Adenopathy. (*Mal. de l'Enf.*, Paris, 1892, x., 57.)

The résumés of five cases are given and to these is added a sixth. Girl, thirteen years and a half old, entered the hospital for abdominal pains and diarrhœa, a tubercular peritonitis was recognized. There were signs of tubercular infiltration at the apices of the lungs. No cavities or breaking down. Hectic fever, temperature of 39° and above in the evening. In the night of August, 13, 1886, hæmoptysis *foudroyante*, blood mixed with air pouring from the mouth and nose. Death almost immediate. The rupture of an aneurism into an unrecognized pulmonary cavity was thought of as the cause.

Autopsy.—The lungs were very pale and very emphysematous and did not collapse on the opening of the thorax. They kept the impress of a finger and were œdematous. In the right lung particularly at the base and behind were noticed disseminated lobules distended with coagulated blood. These lobules were not present in the left lung. The two pleuræ, healthy, not thickened. Slight adhesions from the upper part of both lungs. In removing the lungs blood mixed with air ran from the trachea and a slight compression would cause it to well up in noticeable quantity. At the bifurcation of the trachea in the neighborhood of the hilus of the lungs the glands were tumefied and fused together, infiltrated with granulations gray or yellow. Two or three glands of the size of a walnut were entirely caseous through their whole extent, the largest being in great part calcified. In the right bronchus at the point where it enters the lung and in the posterior surface of the bronchus, was found a vertical solution of continuity of about a centimetre. This fissure situated at the origin of the interlobar division led into a gland cavity of the size of a walnut, quite regularly spherical and entirely filled by a clot of coagulated blood. The wall of this cavity was covered with a gray, slaty coating resembling the inner wall of a cold abscess. In one point this lining was wanting and the neighboring swollen glands made the wall. A little below the fissure into the bronchus, in the gland cavity, was a small clot

of fibrin and blood adhering to a piece of gland tissue, removing this slight membrane one entered the right branch of the pulmonary artery.

Du Pasquier: Three Cases of Thrombosis of the Superior Longitudinal Sinus. (*Mal. de l'Enf.*, Paris, 1892, x., 105.)

Three cases with autopsies reported in which the supposition had been held of the formation of a clot while the children were living. The author states as his belief that from certain symptoms and from the pathological conditions present with these symptoms, at the end of a cachectic disease, for example, we may to some extent foretell the formation of a thrombus. The convulsions are late, not clonic and affecting the limbs, but rather the state is of tonic rigidity established progressively and affecting the legs, the arms, the neck and the whole trunk; or perhaps the limbs are bent and rest in flexion; the whole body may seem to roll itself up and be reduced in size. The extremities of the upper limbs are oftenest the seat of tremors, rapid and of little extent. The face alone seems to be attacked by true convulsive movements; rhythmical movements of the lips, the orbicularis, but not the masseters; the mouth opens and closes alternately in very rapid movement. The orbicularis of the eye is the seat of analogous movements. Strabismus was not seen. The succession of these symptoms, somnolence, coma, state of tonic rigidity, attitude fixed and retained in extension or flexion, rhythmical movements of the mouth, blepharo-spasm, tremor of the fingers when they occur late in the course of cachectic diseases in children may give ground for the supposition of the formation of a thrombus of the superior longitudinal sinus.

III.—SURGERY.

Voorhies, C. H., (Wichita Falls, Tex.): Complete Absence of Urethra; Operation and Cure. (*Medical Record*, 1892, xli., 292.)

The child had a malformed penis with no opening to the bladder. A tenotome was used to make an opening. Beginning at the meatus, it was directed downward and inward to a point beyond where the ejaculatory ducts should open into the urethra, before the canal was struck. A probe was passed through this opening into the bladder and the accumulated urine withdrawn. The child's

penis presented the appearance of one who had been circumcised or operated upon for phimosis. It was about one inch in length; the foreskin drawn back and notched upon the top. The glands and testicles were well formed and healthy in appearance.

Benedict, Samuel C., (Athens, Ga.): An Enormous Congenital Umbilical Hernia Without Cutaneous Covering; Operation; Recovery. (*Medical Record*, 1892, xli., 263.)

It was a male child, approximating ten pounds in weight at birth. There was an entire arrest of development in the skin and muscles of the umbilical region of the abdomen, the edges of the skin forming a perfect circumference of a circle whose radii were two inches, and adherent by a rounded edge to the peritonæum and reflected covering of the cord, which was spread over the whole mass adherent to the mural peritonæum. The umbilical cord passed out from the lower edge of the hernia, and one-and-a-half inch from the pubis. The color of the mass at birth was of a dark bluish-black, and the coverings so thin that the movements of the viscera within could be seen.

Fifty-three hours after birth the operation was made. The dead and yellowish white membrane covering the peritonæum was dissected off. The skin circumference was penetrated with a pair of fine-pointed conjunctival scissors, and the skin cut closely to the peritonæum all the way around, leaving a ring of skin an eighth of an inch wide, approximately, still adherent to the peritonæum. This skin was approximated, after being dissected up for two or three inches to the sides, to obtain sufficient to allow this. A careful iodoform and bichloride dressing was applied. The child made an uneventful and rapid recovery, and in nineteen days there was complete union everywhere.

M'Donagh, Geo. R., (Toronto): Surgical Treatment of Diphtheria. (*Canadian Pract.*, 1892, xvii., 71.)

The two operations of tracheotomy and intubation are discussed, performed for the purpose of overcoming obstruction to the passage of air through the larynx. Early operations are strongly advocated, but there are many cases where a little watching and delay are to be recommended. In general terms the only absolute contra-indication to the performance of tracheotomy or intubation is the absence of laryngeal obstruction. When that

exists, the operation should be done as early as one is convinced that the obstruction is permanent and is so severe that the blood is being insufficiently aerated.

Intubation has many advantages over tracheotomy, and, in the opinion of the writer, is the preferable operation, not only because it is bloodless and less objectionable to the parents, but because the results are better. The details of treatment of cases after intubation are then given.

Holden, G. H. R.: Foreign Body in Larynx; Laryngo-Tracheotomy; Removal; Recovery. (*Brit. Med. Journ.*, 1892, i., 552.)

The patient was a boy, aged fourteen months, and the foreign body was a hook which fell from the mother's dress and was introduced into his mouth with the food. No symptoms appeared until twenty-two hours later, when the breathing became bad. There was some stridor, and at intervals a short, catchy, aphonic cough. The dyspnoea grew more severe, and then, under chloroform anæsthesia, a laryngo-tracheotomy was done and the hook removed. The tube was allowed to remain in the wound six hours. The child made a good and rapid recovery. Previous to the operation, a laryngoscopic examination was made, but nothing could be made out, either without or with an anæsthetic.

Liston, W. L., (Tewkesbury): Case of Compound Depressed Fracture of Skull. (*Brit. Med. Journ.*, 1892, i., 600.)

The patient, a boy ten years of age, had a compound, depressed fracture of the skull as the result of a kick of a horse. It was found that a piece of the right frontal bone, measuring about one-and-a-half inch in length by one in breadth had been detached and beaten into the lower frontal convolutions of the brain, so that its anterior surface looked downwards, and its plane was parallel to that of the roof of the orbit. This fragment was carefully removed with some slight loss of brain substance. The wound was dressed daily under chloroform for a fortnight. The boy rallied well from the initial shock of the injury and operation, his temperature never exceeded 99° F., and he made an uninterrupted recovery within six weeks from the time of injury.

Wilson, T. S.: Foreign Body in Œsophagus. (*Brit. Med. Journ.*, 1892, i., 659.)

Before the Birmingham and Midland Counties Branch

of the British Medical Association was presented a boy, aged thirteen, who some months previously had "swallowed" a scarf pin. The pin was coughed up some four weeks afterwards in about a quarter of a pint of pus. Both the swallowing and the coughing up were accompanied by a slight degree of cyanosis. The boy had no inconvenience from the presence of the pin during the month that it remained in his chest except a little substernal pain. It seemed probable that the pin was lodging at the lower part of the œsophagus.

Southam, F. A., (Manchester): Tubercle of Hernial Sacs. (*Brit. Med. Journ.*, 1892, i., 658.)

Manchester Pathological Society, March 9, 1892. He presented the sac of an inguinal hernia from a child, aged six years, which was removed during the operation for radical cure. It was infiltrated with deposits of tubercle. There was a family history of phthisis. Six months had elapsed since the operation, and the patient was in good health and free from other evidence of tuberculosis. It was remarked that though this condition was not very uncommon, in hernia it had hitherto attracted little attention.

Owen, Edmund, (London): Acute Epiphysitis. (*Brit. Med. Journ.*, 1892, i., 656.)

An infant, aged nine months, was admitted with acute subdeltoid abscess. The abscess was incised and a small opening found leading into the humerus at the surgical neck, from which two small sequestra were removed; during the removal, by scraping, of granulation tissue in the expanded shell of bone, the epiphysis became detached. The cavity was washed out and drained, and the arm fixed as for separation of epiphysis. The patient recovered with a movable joint and sound limb, showing the advantage of early exploration in such cases.

Southam, F. A., (Manchester): Laminectomy for Spinal Caries. (*Brit. Med. Journ.*, 1892, i., 655.)

A girl, aged three-and-a-half years, had cervical caries of about one year's duration. The symptoms grew steadily worse, and although there was not much deformity, there was complete paralysis of both upper and lower extremities, with incontinence of urine and fæces. She lay quite powerless, with the arms extended and the legs flexed. Sensibility was impaired but not entirely destroyed. The respiration was shallow, and the body

perspired very profusely. It seemed probable that the case would soon terminate fatally unless the pressure was removed. On October 25, 1889, the spine and laminae of the sixth and seventh cervical vertebrae were exposed and resected, and a lot of soft granulation tissue was removed with a Volkmann's spoon and scissors. There was a partial return of the power in the arms. A second operation was done in January, 1890, and the spine and laminae of the fourth and fifth cervical and first dorsal vertebrae were removed. There was very slight improvement, except in the arms, which gradually became stronger. Nine months later there was slight return of power in the legs, and slight control over the bladder and rectum. Since then, she has gradually and steadily improved, so that at the present time she can stand and walk without assistance, and has also gained complete control over the sphincters.

Murray, R. W., (Liverpool): Cerebral Abscess; Operation; Recovery. (*Brit. Med. Journ.*, 1892, i., 333.)

The patient was a girl, aged five years, who was admitted to the Children's Infirmary on account of loss of power in the left hand and epileptic seizures affecting the left upper extremity and the left side of the face. Fourteen days after a blow from a poker on the right side of the head, she had an attack of twitching of the left arm and left side of the face, which lasted half an hour. She had three attacks during the day, and a similar one on the next day. The fits always commenced in the left arm; the arm shook and the fingers worked, then the left side of the face became involved, and the eyes "rolled about." The seizures were entirely limited to the left upper extremity and to the left side of the face. She had never vomited or complained of any pain.

On examining the head, a small sloughing scalp wound was seen in the right parietal region, over the Rolandic fissure. Beneath this was a punctured fracture of the skull. With this point as a centre, a disk of bone was removed with a three-quarter inch trephine. The dura was firmly adherent, and the brain substance beneath was in a soft sloughing condition, and did not pulsate. A probe entered an abscess cavity in the brain at the depth of two inches, and about a drachm of thick non-offensive pus escaped. The cavity was washed out, a piece of brain slough about the size of a pea removed, and a drainage-tube inserted. The child had no more epileptic seizures, and made an uninterrupted recovery. There was slight

but distinct improvement as regards the movements of the hand and arm on the second day after the operation, and fourteen days after the operation they were as good as ever they were.

Phocas: Contribution to the Study of the Surgical Treatment of Hydrocephalus. (*Mal. de l'Enf.*, Paris, 1892, x., 75.)

Report of two cases. Trephining and draining of the lateral ventricle in the first case. Death due to infection. In the second, recovery from the operation and very considerable improvement in the general state. In the second case the operative procedure was craniectomy with puncture in the sub-arachnoid space without drainage of the lateral ventricle.

Routier: Case General of Peritonitis; Operation and Recovery.

M. Routier presented to the French Academy of Medicine a boy of fifteen years, on whom he had operated in January, 1891, for severe symptoms of peritonitis with vomiting and signs of rapid collapse. The condition at the time was so grave that he had hesitated to intervene. Anticipating an appendicitis with suppuration, a large incision was made in the right iliac region. A large quantity of pus escaped, but the cæcum was healthy, the peritonitis was general. A new median incision was made and then a thorough lavage with water containing naphthol. With the idea that the lavage was insufficient, the incisions were left open and strips of iodoform-gauze introduced in all directions to permit the free escape of pus. Contrary to all expectation the patient improved rapidly and recovered completely. The discharge from the wounds was such that it was necessary to make three dressings daily. The wound discharged for several days some of the milk and bouillon which the patient ingested. There existed an intestinal perforation situated probably in a region high up in the intestine.

Legroux: Symmetrical Gangrene of the Extremities. (*Mal. de l'Enf.*, Paris, 1892, x., 136.)

A boy, aged fifteen years, was presented before the Society for Dermatology and Syphilology. At the age of eight years had been attacked by Pott's disease for which he had worn a Sayers' jacket. At this time began to have chilblains for which, perhaps, the medullary lesion was responsible. Since has always had bluish, cyanotic, cold

hands, and feet the same. Little by little symmetrical gangrene made its appearance. It was questioned if in this case it was not an early stage of Raynauds' disease.

Railton T. C., (Manchester): Congenital Absence of Both Patellæ. (*Brit. Med. Journ.*, 1892, i., 969.)

The patient was a girl, æt. nine months, in whom both the patellæ were completely absent. There was a slight genu valgus in the left leg, and a tendency to varus in the left foot. The left hip and knee-joints, particularly the latter, were so lax that the left foot would be turned outwards completely around so as to point directly backwards. The right leg could not be so treated. The child was healthy in other respects except for the presence of slight rickets.

Lovett, R. W., (Boston): A Case of Torticollis Due to Hæmatoma of the Sterno-Mastoid Muscle. (*Boston Med. and Surg. Journ.*, 1892, cxxvi., 311.)

Alexander P., six weeks old, was seen in August, 1890, on account of a swelling in the neck. The child was healthy, and was born by an easy labor. In the left sterno-mastoid muscle was a bunch about the size of a hazel-nut. The muscle was slightly contracted, as a result of which the face was turned somewhat to the right. The head could be put in the normal position, but could not be over-corrected. The tumor did not seem to involve the surrounding structures. It gradually disappeared and at the end of two months was no larger than a very small cherry.

In January, 1892, it was again seen. The child now presented a well-marked case of torticollis due to the contraction of the left sterno-mastoid muscle. The head cannot be placed in a correct position, there is some asymmetry of the eyes, the tumor has entirely disappeared, and were it not for the early history the case would pass for a routine one of torticollis.

Cushing, H. W., (Boston): A Case of the Phelps' Operation for Talipes Equino-Varus: Results. (*Boston Med. and Surg. Journ.*, 1892, cxxvi., 308.)

The patient was eight years old, and walked almost on the dorsum of the foot. The toes pointed inward ninety degrees from the normal position and were elevated. Three-and-a-half months after the operation, the foot is perfectly straight, especially the anterior part so often seen, still somewhat inverted after operative treatment. The

sole is in its normal position. There is no equinus. The patient can flex the ankle beyond a right angle, and walks without a limp. The points of interest in this case have been :

1. The completeness of the reduction of the deformity.
2. The small cicatrix.
3. The amount of pain immediately following the operation, quite marked for twenty-four hours, then gradually diminishing, and finally ceasing at the end of the third day.
4. The tendency at present for the foot to assume a position of valgus apparently from a lack of support of its inner edge. It may disappear as the cicatrix becomes firmer.

This record is contributed as a proof of the efficiency of Dr. Phelps' method, and to show the result which may be attained by it.

Ped Surg

Tirard : Abnormality of Intestine—Cystic Disease of the Ovaries of an Infant. (*Lancet*, 1892, i., 1131.)

The first case, æt. three years and five months, died with cardiac disease. The post-mortem showed the vermiform appendix lying in the position normally occupied by the gall-bladder. The ileum was found running into the cæcum, which was attached by a distinct omentum to the edges of the fissure for the gall-bladder, the bladder itself lying between the two layers ; from the cæcum the large intestine ran to the left iliac fossa, where it passed behind the small intestines to the right iliac fossa, from which point it descended to the anus. A congenital constriction of the pulmonary orifice was also found, together with the ordinary signs of mitral disease.

In the second case, an infant, death was due to bronchitis. The right ovary was represented by two cysts, which were perfectly translucent, and separated from one another by a distinct partition, no trace of normal ovarian tissue being present. The left was healthy for its proximal half, the distal half being occupied by a rounded and translucent cyst.

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Original Communications.

HYDRORHACHIS, CLUB-FEET, CONGENITAL LUXATION FORWARDS AND UPWARDS OF BOTH FEMORA.*

BY A. JACOBI, M.D.,

New York.

P., a male of ten weeks, was admitted to the German Hospital, New York, on February 21st, 1892, and to the Mount Sinai Hospital on February 25th. Here he died April 18th. No history of deformity or anomaly in the three other children of the same family, no anomaly in the course of pregnancy. The spinal tumor was over the lumbo-sacral region, of the size of a child's fist, covered around its origin with normal skin which thinned out in the direction of the greatest prominence until the integument consisted of nothing but a fine translucent membrane which had been repeatedly perforated (spontaneously) and oozing with small quantities of transparent serum. To the touch the swelling was not uniform. In a number of places hard strings could be felt, or bands, which appeared to increase in thickness when approaching the spine, and to radiate fan-like all over the mass. An aperture into the vertebral column was distinctly felt. It appeared to be of the size of about two vertebræ, but the tumor was but little compressible. At all events there was, while pressure was exerted on the lumbar swelling, no swelling of the cranial sutures or fontanelles, and no cere-

* Paper read and specimen presented before the American Pediatric Society at its meeting in Boston, May 3, 1892.

bral symptom attributable to a change of the cerebro-spinal equilibrium. The child, otherwise, appeared normal, with the exception of the lower extremities. The thighs were amply developed, the legs and feet very thin, calves not developed, feet in club-foot position, which could not entirely be overcome by appropriate manipulation. The hips exhibited anomalies of a peculiar sort. Neither extension nor flexion, neither abduction nor adduction were free. There was a moderate amount of abduction and extension, hardly any adduction and flexion. What was suspected to be the head of the femur was detected outside the joint, forward and upward. There was no, or hardly any, perceptible movement of the lower extremities. Thus the case presented a hydrorhachis of the size of a child's fist, complete atrophy of the legs and feet, club-feet, and congenital luxation of both femora.

On the afternoon of the day of admission the tumor was aspirated, and a few drachms of a clear serum withdrawn. The puncture gave but little pain. The part was covered with iodoform-gauze and gently strapped. The temperature of the rectum was at 8 P.M. 101.4° , the night was fair. On the following day, from 8 A.M. to 8 P.M. the temperature was 101.6° ; pulse 166; there were some bloody evacuations, also some tenesmus. It was then ascertained that the "parents" who were anxious to dispose of the baby, had concealed his gastro-intestinal disorders. To them I had to attribute the frequent elevation of temperature and nocturnal restlessness.

On the 23d the temperature was normal; pulse 130; the baby quite feeble; some blood in the discharges.

On the 24th a few doses of two drops each of a saturated solution of sodio-cafein. salicyl., were administered, and at night ten drops of tinct. opii camphor.

On the 26th, twenty grammes of liquid were withdrawn from the sac. The fluid contained one-tenth of a per mille of albumen. Then ten minims of Morton's iodine and glycerine mixture were injected (J. I, KJ. 3, glycerine 48). The patient cried some while the injection was being made. The temperature rose gradually, in the afternoon, to 101.2° ; eight drops of paregoric and one grain of chloral were given, and at night again a dose of the former.

All through the 27th, with some intestinal disorder as formerly, the rectal temperature ranged about 101.6° .

28th.—Twelve drops of the iodine mixture. Vomiting once, two hours afterwards. At no other time was there any vomiting after an aspiration or injection. Temp.

reached 100° but twice. The urine through the next twenty-four hours had a sp. gr. of 1.008, contained bladder epithelia and urine, and not a trace of iodine.

29th.—Temp. mostly normal ; 7 P.M. 101° ; pulse 142 ; at another time 150, temp. 98.8° . The frequency of the temperature changes excludes any connection with a persisting cause depending on the operative procedure.

March 1st.—Four soft movements, no blood ; temp. 100° .

2d.—Temp. 97.4° to 98.6° ; pulse 112 to 132 ; resp. 34 to 48. Temp. reached 99° rarely until

6th.—Iodine injection twelve drops. Much pain and restlessness for from one to two hours. Over the iodoform-gauze and bandage an ice-bag was applied. Ten hours after, temp. was 101.4° ; at 7 A.M. on the 7th 100.2° , then below 100° ; rose again to 100.8° ; was normal on the 8th, and never rose to 100° until the

12th.—It was noticed that the tumor was reduced in size to almost one-half. Seventeen drops of the iodine mixture were injected without any pain. Temp. rose but once to 100.8° , was normal again at midnight, rose to 102.6° on the afternoon of the following day, and remained fairly normal, with the exception of the 17th when it reached 100.4° once.

20th.—The head had apparently increased in size and was carefully measured. Largest circumference $44\frac{1}{2}$ centim. ; from root of nose to foramen magnum $33\frac{1}{2}$; between the two meat. aurium over the vertex $30\frac{1}{4}$; from vertex to chin 47. Compression of the sac, which was harder than ever and one-half its original size, resulted in raising the large fontanelle though the patient was quiet ; no convulsive twitching. Seven drops of the iodine mixture were injected into the sac. No rise of temperature ; no pain ; no iodine in urine.

On the 24th, some constipation in place of the persistent diarrhœa ; one attack of vomiting. Next day, paregoric being omitted, passages were soft again, and no vomiting.

27th.—Iodine mixture injected—fifteen drops. No rise of temp. ; no pain ; no iodine in urine (sp. gr. 1.000).

29th.—Head which was bulging, was punctured $1\frac{1}{2}$ centim., from the median line over large fontanelle. Seventy-five c.cm. were withdrawn ($\frac{2}{3}$ iis.). The liquid contained one-tenth of a per mille of albumen. Then the head was gently but firmly compressed. No disagreeable reaction ; temp. 98.4° to 100° ; pulse 118 to 130 ; resp. 34 to 48.

April 5th.—Urine 1.003, trace of albumen. Head had increased considerably, circumference $44\frac{1}{2}$; from root of

nose to foramen magnum $37\frac{1}{4}$; from ear to ear $33\frac{1}{4}$. Thus it appeared that as the circumference had not changed since March 20th, the increase in size must be attributed to dropsical enlargement of the lateral ventricles. Sixty cubic centimetres of liquid (containing eight-tenths of a per mille of albumen) were withdrawn from the cranium, and pressure applied. Fifteen drops of the iodine mixture were injected into the lumbar sac.

6th.—Urine 1.006, negative.

9th.—4 A.M., temp. 101.2° ; resp. 60; pulse 148; some diarrhœa and a few bronchial râles; 5 P.M., 101.6° , then normal to 10 P.M., when it again rose to 102° for a few hours. These disturbances were evidently due to gastrointestinal disorders which necessitated bismuth, paregoric, bicarbonate of sodium, and the peptonizing of milk.

On the 12th everything appeared to be more normal. So it remained until the 16th. Then within sixteen hours the temperature rose to 106° ; pulse 180; respiration 70. In my absence they were persistently firing into it whiskey and caffein, in spite of which the baby resisted until the 18th, when he gave up the unequal combat between himself and the "house."

The corpse having been removed from the hospital, it took me two days to recover it. At that time the circumference of the head was 45 centim., the longitudinal distance from nose to neck 37, that from ear to ear $33\frac{1}{2}$. The sutures were very wide, the coronal and sagittal at least two inches, the temporal three-fourths of an inch.

The brain after having been in alcohol (it was too soft to be handled when recovered), and after twelve ounces of liquor (370 grammes) had been removed, weighed 429 grammes. The weights of the normal brains of children from two to four months are 522 according to Lorey, 546 according to Bischof. Those between four and six months 571 (Lorey), or 640 (Bischof). The kidneys were hyperæmic, the two substances less differentiated than normal (post-mortem). All the other viscera appeared to be sufficiently healthy.

The lumbar tumor was but the size of a walnut. The translucent surface was reduced to about one-sixth of its original extent. A longitudinal incision cut through a number of nerve-strings which were attached to the sac, the

internal surface of which was covered with a fan-like distribution of strings originating from the cord which terminated in the sac. This covered the two lower lumbar vertebræ, the spinous processes of which were absent. The aperture was about $2\frac{1}{2}$ centimetres long by three-fourths of a centimetre wide. With some difficulty the central canal was found, and a thin probe was then readily pushed through the whole length of the—otherwise normal—spinal cord.

While the muscles and other tissues of the thighs were well developed, and their size was normal, the legs below the knees were atrophied to a considerable extent. This atrophy was bilateral and uniform, and both feet were clubbed. It is noteworthy that the peripherous ends suffered to such an extent. This is exactly as it happens in very bad cases of poliomyelitis of the normal infant or child. Still, in most cases of the latter the extensors are more affected than the flexors, while in our case the muscles were all atrophied, both extensors and flexors. Most of the spinal cord was wasted on the sac and neither innervated the lower extremities nor got connected with such nerve tissue as formed in the extremity. Thus neither the motory nor trophic innervation became anything like normal. As the specimen shows you, all the muscles of the leg are present, but they form fine strings, or filaments, rather than muscles.

In poliomyelitis club-foot is caused by extensor paralysis. As in this specimen all the antagonists are affected, being equally paralytic, equally atrophic, no predominance of muscles can be accused here. I have to emphasize this point because club-foot is a frequent occurrence in all those forms of "spina bifida" which are genuine hydrorhachis, originating in the central canal of the cord.

In our specimen you will notice that but little force is required now that the integuments are removed and the filamentous muscle-strings are isolated to overcome the club-foot position. The bones of the tarsus have not suffered. They are small, not quite like the muscles, still they are small. But they are proportionate in their rela-

tion to each other, and the little foot flattens down on the table with great ease. Not even the collum tali is changed. I am therefore inclined to look for the cause of the bilateral club-foot, perhaps also partly of the congenital luxation of the femora, in the influence of external pressure. The mother who had several children before, noticed the difference between the size of her abdomen during her pregnancies. She was very small the last time. When she brought the child, there was but little liquor amnii. From the very first, the foetal extremities had no space to swim in, and were pressed in one direction. That one direction was but the exaggeration of the normal position of the foetus in utero. Some twenty-five years ago I knew a specimen of the kind, in which both malleolar regions, in a case of bilateral congenital club-foot, exhibited an atrophic skin, the atrophy being due to pressure. I attended the case myself; there was so little liquor amnii that I hardly noticed its escape, and the condition of the feet and the integuments were observed instantly. This causation of club-foot was as far as I knew not recognized at that time either by obstetricians or surgeons. It has since been introduced into the ætiological literature by Volkmann, and when I proposed it years ago, in connection with many forms of club-foot, before a society of New York surgeons, it met with approval.

If the theory be acceptable in this case our bilateral club-foot here, is rather a complication of the hydrorhachis, than its result.

The same may be said of our bilateral luxation of the heads of the femora. It appears to me that in this case the congenital luxation is due to two causes, that is to an arrest of actual formation, and to an arrest of functional evolution. What I mean to say is this, undoubtedly the aperture in the spinal canal is the result of aplasia; there was too little formative power, too little bone material. It is true that a large hernia, or meningocele would suffice to prevent the closure of the osseous spinal canal, but there was no large tumor at any time, on the contrary, we are told that it hardly rose above the surface

at birth. Thus it appears that there was rather an original absence of formative material which permitted the patency, than pressure from inside which forced the aperture.

Aplasia, the insufficiency of building material, is by no means a local process, unless in exceptional cases. When it is local it is so from local causes, for instance, thrombosis, or constriction, or semi-amputation. In very many cases of insufficient development of the vertebral column a similar deficiency takes place in the cranium. So it is in our case, the cranial bones are thin and small compared with the size of the head and the sutural substances. In such cases the dura mater also has been found defective by Recklinghausen; the muscles in the neighborhood of a hydrorhachis are often defective or absent, and thereby a lordosis is formed. In our specimen the acetabulum on both sides is small, narrow, its cavity not formed, rather flat, not sufficiently developed to hold the head of the bone. The head itself is small, and not well formed, its cartilaginous layer is but scanty. Thus the insufficient development of both the socket and of the bone coöperated in preventing the normal mutual adaptation of the two. In most cases of this kind, the acetabulum being in its right place, the head of the femur is found posteriorly to it, in iliac luxation.

In this case of ours, however, the fœtal luxation is forwards and upwards. Why should that be so?

In the early embryonic period while the lower extremities are being formed and extended, their posterior aspects are turned toward the abdomen. This—originally—normal position is afterwards changed by axial torsion, or turning, into the normal position of infancy, childhood and advanced life. Even normally, the foot of the newly born, of the infant, and of those who never evolve from that stage, is turned in. This position requires will and intelligent practice to be overcome. In bad cases it is not overcome by either, that means it is bad enough to be club-foot. In very bad cases not even the thigh assumes the normal position of normal development. Then the

head of femur may never reach fully the deepest distance of its socket, or it may remain outside altogether, or be pushed out by some unfortunate circumstance. That unfortunate factor in our case was the constant pressure of the uterus, which was not filled with liquor amnii, and thus hampered the normal development and functional evolution.

Conclusions.—The puncture of spinal or cerebral chronic effusions gives rise to no pain, no elevation of temperature, no vomiting.

The puncture of a hydrocephalic effusion, though compression of the cranium be resorted to, appears to rather accelerate a new accumulation.

The puncture or rather the removal of the locked up fluid appears to change the character of the serum from a transudation to an exudation. For in the intra-cranial fluid which was not interfered with by any iodine injection, the albumen increased from one-tenth to eight-tenths of a per mille, within a week. Hoppe-Seyler found corresponding changes after repeated punctures of spina bifida.

The injection of Morton's iodine mixture into the hydrorhachis was painful only while being made. The child was quiet and placid immediately afterwards, except once. There was no rise of temperature, but a gradual diminution and hardening of the tumor.

Iodine was not found in the urine, though the latter was tested for it during twenty-four hours after each injection.

It is noteworthy that neither puncture nor injection affected the patient, though there was a complicating illness.

Though there be no apparent communication at first between the lumbar sac and the brain which would point to a morbid tendency or affection of the latter, this is apt to make its appearance within a short time. That seems to prove that both nerve centres participate in the morbid process at an early period. The aplasia underlying the defective formation of the bone and dura mater (and muscle) at the lower end would perhaps correspond at the upper, with insufficient development of the epithelium

of the ependyma and the structure of the blood and lymph vessels, also of the bone.

Though most cases of club-feet appearing with spina bifida are dependent upon the latter, there are those which are not, and require a different explanation. At all events this was so in our case. The occurrence of the bilateral luxation of the femur was, though originally depending on general aplasia, finally brought about by a complication of circumstances (the scantiness of liquor amnii and thereby the retention of the thighs in their early foetal position).

DISCUSSION.

Dr. HOLT.—The enormous size which these hydrocephalic cases reach at times is very surprising. I made an autopsy on an infant, aged five months, last summer and removed five-and-one-half pints of fluid. It seems to me there is very little encouragement for us to operate in such cases. In looking over the literature of the subject I have been unable to find any cases of permanent benefit. It is a question what we should do in these cases. I would like to ask Dr. Jacobi if he knows of any case of operation where the result was permanently beneficial.

Dr. JACOBI.—I never had such a case, and do not know that I ever shall have one. In most of the cases the cure has been reported too early; they have been reported within a few months after the last puncture had been made, and, therefore, they are not reliable. Still, there are a few cases that appear to have got well. A year or so ago I looked over the literature of the subject myself, and I cannot remember the number just now, but I know that some of these cases appear to have recovered. Again, there are a few cases on record where accidents have resulted in cure. There are a few cases in the older and more modern literature in which the child sustained a fall, the blow opened the part, and the fluid oozed and continued to ooze and the case got well. So it seems to me what has come about by an accident might be brought about by the use of aseptic instruments. So we must recognize that some of these cases may be cured. A case of congenital hydrocephalus, however, does not mean simply the presence of water. It means an internal surface which is continually secreting; and it means at the same time a

cerebrum which has been interfered with, whose walls have been flattened down by pressure, and the like, and it is a question whether we could save such a case, with the result of obtaining a really sound and competent individual.

Dr. OSLER.—I would like to call the attention of the members to the procedure recently advised by Czerny, of puncturing between the second and third vertebra. He claims to have effected cure by this means.

Dr. KOPLIK.—I have had two cases of hydrocephalus. The first case was primary, and the amount of fluid present was very large. The other case I think was secondary due to inflammation of the endyma. Both of the children were punctured by a surgeon well known in New York. When the fluid was drawn off it just enough was taken away to reduce the size of the head to what appeared about the normal. No more fluid was taken off. Compression was put on the head. In both cases the fluid subsequently accumulated. In the second case, where I said I thought the trouble was secondary, we punctured again. Yet the head again increased in size, and both children died. There is one point in the second case which I wish to refer to. We punctured very early. The child had convulsions for six weeks. After the convulsions had lasted a week the child went into a condition of opisthotonos, and was brought to me in that condition, without any temperature. I examined the child every day for one week and I noticed the fontanelles and sutures increase in size. We punctured very early in this case. The ages of the children were respectively seven months and twenty-three months.

Dr. CAILLÉ.—I look upon operative interference in cases with large spinal aperture as of no avail. In cases of spina bifida in which the vertebral defect is very small and soon closes we have to deal with a simple cyst and it is a very simple matter to get rid of its contents. Puncture or elastic pressure will remove the fluid. Or the injection of some mild irritant will do it. These are the cases which get well, and we do sometimes see fair results. I have reported two cases in which the cyst was really made smaller, and entirely closed, but they were of this simple kind.

Dr. NORTHRUP.—It seems to me that in case of successful operative procedure in these cases, that the prognosis must be very unfavorable even if we do not kill the child. In all these cases which I have seen at autopsy there has

been such an advanced dilatation of the ventricles of the brain that it is hardly worth imperiling the life of the child to save it. It is an operation which promises very little as far as the child's welfare is concerned.

Dr. JACOBI.—The question of the advisability of operating has been put, and whether we can expect a complete closure. There is a number of good observations where it has been obtained in worse cases than those reported here. Again, gentlemen, when you have to do with a case of paraplegia in an adult, where the patient is helpless, it would never enter your minds that it was your right to withdraw your aid, but you would make him comfortable and do your best to help him, miserable as that life may be. Here is an individual that has just begun to live, whose rights are recognized even by law, and the question is not whether we can restore that child to the full use of his limbs, but whether we can keep the child alive at all. If the question can be answered in the affirmative it is none of our business to ask whether that child ought to live or not. His parents and society are of the opinion that every life ought to be saved. It is not a question whether the child can have useful limbs, but whether the child can live and it is from the latter point of view that we should look at it.

TYPHOID FEVER IN CHILDREN—CONCERNING ITS OCCURRENCE UNDER TWO YEARS OF AGE.*

BY WILLIAM P. NORTHRUP, M.D.,

New York.

So many indefinite fevers, in infant life, drag along variously diagnosticated; so many indefinite cases come to autopsy revealing swollen Peyer's patches, swollen mesenteric lymph-nodes, enlarged spleen—what shall we say of them? The symptoms of typhoid and no autopsy; the autopsy of typhoid and no symptoms; bacterially on typhoid bacilli.

* Read before the American Pediatric Society, Boston, May 3, 1892.

Enlarged Peyers and mesenterics are a frequent sight in institution-reared children, where most of the deaths occur in yearlings and where, for reasons, typhoid may be omitted from consideration. I may say that in the New York Foundling Asylum there has not been a case of typhoid in my own experience of ten years nor in the experience of Dr. O'Dwyer of about twenty years. There are about 1,800 children under the care of the house continually.

Imagine my surprise at being told on the street one day: "They have a case of typhoid in a two-year-old in — Hospital." The more I reflected on the matter the more my steps insisted on pointing to the above-mentioned institution. As bad luck would have it, I met the entire staff and visiting—save the pathologist—in the operating-room. "Autopsy diagnosis," they said. Well, to illustrate my position and convictions in this matter, I foolishly challenged the diagnosis, flatly declined to accept it and declared that the position would be abandoned only when typhoid bacilli were demonstrated.

These personalities, it is hoped, may be excused if they sufficiently strengthen the illustration.

The pathologist was able, well-informed and vastly experienced in *adult* autopsies, but disclaimed any special experience with children. The whole attending staff simply accepted the diagnosis: "Swollen and ulcerated Peyer's patches," "Typhoid Fever."

Here is the hospital case recorded backwards:

(1) After most thorough and careful bacteriological investigation, no micro-organisms could be demonstrated fulfilling the special requirements of typhoid bacilli.

(2) *Autopsy*.—Petechial eruptions over trunk, legs and arms. Petechiæ on pericardium and left ventricle. Heart muscle pale.

Spleen.—Malpighian bodies prominent, hæmorrhages under capsules.

Intestines.—Solitary follicles in large and small much enlarged; many show central hole. Peyer's patches much enlarged and congested, some a little ulcerated.

I would ask, is this not a fair autopsy record for typhoid fever? Answer—for adults, yes; for children, no.

Third step.—Let us now go back to the history:

• A two-year-old girl had not been feeling very well, “twitched a little,” her mother said; for these reasons was taken out for the air into one of the breathing-places of New York. While seated upon a bench she was seized with a prolonged, severe convulsion. The policeman summoned an ambulance, and after forty minutes sojourn in the hospital ward the little patient died, with a temperature of 110° F.

This case stands recorded in the hospital books under heading “Peracute Enteritis.” Just beneath it crossed out with blue pencil is “Typhoid Fever” with an interrogation mark.

A second case read backwards:

Autopsy.—Spleen slightly enlarged, frangible.

Small intestines.—Peyer’s plaques enormously swollen throughout; mesenteric lymph-nodes universally swollen.

Notice these leading lesions in relation to adult typhoid. The large intestines were normal. In the small the Peyers were so abruptly elevated that they looked like pieces of chamois skin pasted upon the mucous membrane; contents of bowel fluid and greenish. The other organs were normal.

This case represented such a large class and was so marked in its essential features that it seemed worth while to examine it bacteriologically. Dr. Prudden kindly consented to do so. The typhoid bacillus was not found. Morphological examination showed swollen follicles in the agminate glands, without rupture, without ulceration.

When we come to the history, the symptoms of typhoid are not present.

Patient was five months old. Under observation six days. The day before death it vomited twice; 99½° F. rectum. Otherwise continued well. On the last day of life its bowels moved two or three times after castor-oil, when child went into collapse and died; no convulsions.

Summary.—Our contribution is that typhoid fever in children under two years has never been observed in the New York Foundling Asylum so far as ascertained.

2d. That swollen Peyer's and mesenteric glands, and spleen in children, cannot safely be interpreted like similar lesions in adults.

TYPHOID FEVER IN INFANCY AND CHILDHOOD.

BY CHAS. WARRINGTON EARLE, M.D.,

Chicago.

TYPHOID fever has justly been considered an infrequent disease among children. Indeed, prior to 1840 the opinion quite universally prevailed, that infancy and childhood enjoyed an immunity from it. I say justly, for it is comparatively rare, particularly in children under two years of age, although testimony is accumulating and cases are being recorded which make it certain that young infants may become victims to this disease.

According to Vogel, epidemics of typhoid fever affecting principally children, have taken place. This occurs when a large number of families are procuring their milk from one dairy, the milkman's family being sick with typhoid fever. There is indeed no reason why children should not have typhoid fever, when the source of infection may be not only in the milk and water which they drink but in the atmosphere which they breathe; certainly they are exposed to the infection as well as adults.

Children are affected with typhoid more frequently after the fifth year, although, as I shall demonstrate, there are quite a number of cases on record under two years of age.

Typhoid Fever in Infants.—A case is recorded in Keating's Cyclopædia, of a child six months old, in whom the diagnosis was unmistakable. The intestines were exhibited by Murchison at the London Path. Society. In the

same work is an unpublished case of mine in which the child, twenty-four months old, had intestinal hæmorrhage and all the classical symptoms of typhoid present, and finally died. The autopsy revealed the usual pathological findings.

Vogel in 1,017 cases records seven under one year, and in one case the disease took place three weeks after the child's birth, the mother having typhoid. Montmollin had fifteen under two years of age out of 295 cases. In 280 cases reported by Henoch, eight were under two years of age.

In the *Lancet* of January 2, 1892, Dr. Ogel records a case of enteric fever in a child four months and fourteen days old, who died in St. Bartholomew's Hospital. The post-mortem revealed swollen and ragged Peyer's patches. He also says that Murchison makes mention of three cases in younger infants, namely eight days old, fifteen days old, and in a foetus of seven months.

I shall report a case of an infant five months and three days old, at whose autopsy we found all the evidences usually present after enteric fever. So we are certainly discovering that typhoid fever is not so infrequent in infants as we had been led to suppose.

Typhoid Fever in Children.—The proportion of children affected with typhoid fever over five years of age, is about as follows: In 280 cases observed by Henoch, 154 were between five and ten years and sixty-two between eleven and fourteen years of age. In 1,070 cases observed by Vogel, 412 were between five and ten years and 393 between the ages of eleven and fifteen. My deductions in typhoid in children are based upon twenty-one cases whose histories are very complete, and a general idea which I have obtained from fifteen or twenty other cases whose record we are not able to obtain with sufficient completeness and accuracy to make them of scientific value. These cases have all occurred in the city of Chicago during the last year and a half. My practice extends over a period of twenty-two years, and the epidemic of typhoid fever upon which this paper is based has given

me a larger experience in this disease among children in that time than I have had in the twenty-one preceding years of my practice.

The youngest of my cases was five months and four days. Seven occurred before the fifth year; nine between the fifth and tenth; and five between the tenth and fifteenth. Of these twenty-one cases, one was lost. A full history with the result of the autopsy will be found in another part of this article.

I have then two objects in presenting this paper. First, to place on record a comparatively large number of cases of typhoid fever in children in private practice; and secondly, to discuss very briefly the cause of this disease as it has occurred with us during the time mentioned. There must at this day be some tangible cause for typhoid fever. The time has passed when it is sufficient to state that typhoid fever comes from decomposing logs, or from an odor from the sewer or from tainted food. There is a specific recognized bacillus which is found in every lesion of typhoid fever. I cannot at this time enter into a discussion in regard to this, nor can I review the recent studies of those who seem to have demonstrated these facts. The demonstration of typhoid bacilli in milk and drinking water and in other sources of infection is one of the triumphs of the science of bacteriology. I shall confess that I believe that our drinking water contains the infection which has caused this epidemic, and no amount of pride which I may have in my own city, will cause me to deny the origin of this disease as it is now occurring. I shall however take occasion to criticise some of the statements which have been made by those unfriendly to us. An article in the *British Journal* has appeared and some of our eastern periodicals have taken the trouble to reproduce it, either because they are fully in sympathy with the views therein contained, or because they are grossly ignorant of our surroundings and particularly the water supply. I refer at this moment to an article in the *Medical Record* of New York entitled "A Warning to Chicago." A most glaring error is made and one which is apparent

to any one who will take the trouble to inform himself, when it is stated that the water supply of our city is at present derived from the river. There never was a more unjust or untruthful statement, for as a matter of fact not a drop of the drinking water for the inhabitants of our city comes from the river. Now what is the source of our water supply? What are some of its defects and what are we doing to remedy these defects?

I desire at this time to give some general statements in regard to the source of our present water supply, the immense improvements now nearing completion to increase and better it, and to point out some of the defects in our sewerage system and how this is to be improved and perfected.

Our city extends along Lake Michigan from Hyde Park to Lake View, a distance of probably twenty miles. The main part of the city extends towards the west from two to ten miles. There is a distinct water supply to the southern part of the city, which I will designate the Hyde Park supply; a distinct water supply to the northern part, which I will designate the Lake View supply; and the supply to the main city.

The water to the city proper comes from a tunnel which extends into the lake two miles, Hyde Park from a tunnel which extends into the lake one mile, and Lake View from a tunnel 2,000 feet from the land.

The water from the lake during the greater part of the time is simply beautiful. It is clear, cool and absolutely uncontaminated. It compares very favorably with the water which many of us have seen in Vienna. Occasionally it is slightly impregnated with organic matter. No one with any regard for the truth can say otherwise.

We have nearly 900 miles of sewers; the one from the north to the south extending probably a distance of fourteen miles, and the one taking the sewage from the west commencing about seven miles from the lake.

There is no disputing the fact that the sewage of probably 300,000 people of our city empties into Lake Michigan; the rest of it in the main, is conducted into the

river and goes away from the city, except at certain times in the year when the current of the river is turned into the lake, and at this time there is water pollution. Now this is all wrong, it is unscientific, it is criminal to the poor who cannot be to the expense of buying pure water.

We are just as well aware of it as those who criticise us and yet the growth of the city has been so phenomenal that it has been with difficulty that suitable provisions could be made for the disposal of our sewage.

Now what is being done to obviate these defects? We are working in two directions: 1st. to obtain a water supply at greater distance from the lake shore, and secondly, to conduct all our sewage, down the river so as to remove the last chance of the pollution of our drinking water. By next October our new eight foot tunnel will be in operation which will take water four miles into the lake at which point no contamination at present and for several years can take place. The one mile tunnel at Hyde Park will be extended one mile further and will be completed during the summer. The tunnel at Lake View (2,000 feet from the shore) will be extended two miles, and in July of this year water will be taken from a point 6,500 feet from shore, and the two mile source of supply will be completed in one year. It will be observed then that we have in process of construction undertakings and improvements which within a year will give us the best and purest water that can be obtained in any large city. This will be true with our present sewerage system, and when the drainage canal is completed we shall be safe with a population of three or four millions.

Clinical History.—The typhoid fever which we have observed during the last two or three years in children conforms very fairly to the disease as we have noticed it during the same time in adults. This is contrary to the previous experience and observations of some of our best observers, particularly Wilson.

The clinical history differs according to Unger in the greatest degree in young children, although in my cases it was not markedly different from that found in adults.

The symptoms referable to the prodromic period were almost always absent in very young children, although pain in the head was usually complained of by our older patients particularly at the beginning of the disease. The parents had usually noticed that the child was uneasy nights, rolling and tossing about, and in some instances that fever was present several days before they consulted the physician. There was sometimes a want of appetite and some diarrhœa, but in the majority of cases the symptoms which caused them to consult me, were either a fever more particularly at night, or slight diarrhœa, or a feeling of weariness, with sometimes symptoms of indigestion, and, in a few instances nose-bleed.

The irritation of the gastro-intestinal canal in typhoid fever seems less than it was a few years ago. That a change has been wrought is certain. Whether this is through treatment or from the rest in bed which we make absolute in the treatment of this disease, or because we feed more and medicate less I am unable to say; but that the clinical history of typhoid fever in this one respect at least, has changed during the last quarter of a century, there is in my mind no doubt.

Sex.—In my cases ten were male and eleven female. In Vogel's 1,017 cases, 870 were boys.

■ *Duration.*—In our present epidemic the duration of the disease in children was from seventeen to forty-five days, with an average of twenty-six days.

Appearance of the tongue.—This does not have the characteristic redness which we formerly noticed in adults. In the majority of cases it is only slightly coated while in others there is a very heavy coat, with edges slightly red. I do not now remember of seeing any cases of that red, hard, glistening beefsteak tongue that the older authorities refer to. Dr. Christopher of this city believes the conditions of the tongue quite diagnostic of typhoid in children. He describes the coating as thick and heavy over the major part, but leaving the tip and margins free, and slightly red. Sometimes he finds a V shaped reddish appearance in the center of this organ.

Vomiting.—Vomiting was present in eight cases; slight in six and severe in two. In Henoch's cases, there were forty-two cases of vomiting, and Vogel remarks that this symptom takes place with greater frequency than in adults.

Condition of the Bowels.—As a rule in this epidemic we have had about as many cases of constipation as diarrhœa. In the Cook County Hospital of this city, where record is kept, this states about the percentage which takes place in a large number of cases. Of the twenty-one cases of children which I record, constipation was present in three, slight diarrhœa in eleven, severe diarrhœa in eight. In Henoch's cases, twenty-three were constipated, and in two hundred and twenty-four recorded cases, diarrhœa was present in one hundred and seventy-five.

Rose spots were found in all the cases except one, which was seen late, and in three which either were not examined for them or no record was made of their appearance. Henoch says that rose spots were absent in fifteen cases, but were usually found in other cases.

Tympany.—Henoch speaks of tympany as being rare. This was not true with us, as a majority of cases showed more or less tympany. In two it was very marked; in one case (Cheever) a very extreme tympany developed on the tenth day, and with marked nervous symptoms, and she was from the first to the last one of the sickest patients in the list. In a second case (Smith) extreme tympany developed during convalescence. There was here great constipation. Both symptoms were relieved by free bowel movements.

Hæmorrhage of the Bowels.—In my unpublished case in Keating's Cyclopædia, it was present, while in our recent epidemic none took place. Henoch noticed it nine times. Vogel says intestinal perforations are rare.

Epistaxis.—Was severe in two cases, slight in several. Vogel says that nose-bleed in typhoid in children is rare.

Temperature.—The temperature ranged from 103° to 105.1-2°, the last being the highest that was noticed. Henoch states that the temperature is usually from one-

half to one degree higher in the evening. My cases indicate a somewhat greater difference. In a recent case, the history of which is not included in the twenty-one cases, the temperature reached 105.6° for three days. This child made a good recovery.

- *Pulse.*—In my cases it ranged from 90 to 180 and usually its rapidity corresponded with the temperature tracings. Henoch says that this is usually his observation.

Splenic Tumor.—This was found in seventy per cent. of the cases and can usually be demonstrated by percussion and rarely by palpation. Swelling of the spleen in children was one of the characteristic signs, and the organ was frequently painful on pressure. In one of my cases a considerable part of the left side was painful, and in a second case pain over the spleen was severe and localized. Vogel demonstrated a splenic tumor six hundred and six times out of six hundred and sixty-two; it was palpable thirty-six times in one hundred and one. Henoch found splenic dulness in one hundred and forty cases.

Myxædema.—Was found in only one case, although frequent attempts were made to obtain it in others. This symptom is not mentioned by the other authorities to whom I have referred so frequently in this paper.

Parotitis.—Occurred in one case on the right side. Resolution took place without suppuration. Vogel says that the parotid gland swells sometimes in children during the second week of typhoid. Strümpell believes that infection of this gland comes from the mouth, finding its way along Steno's duct and that proper cleaning and disinfecting will prevent the complication.

Phlebitis.—Occurred in one case, the infection making its appearance in the profunda femoris vein.

Periostitis.—Was observed in one case, the parietal bone being the one involved.

Pains during the Disease and Convalescence.—In one case (Keller) pain was so severe in his thigh as to suggest an osteomyelitis. In a second case (Keist) anodynes were needed from time to time for the severe pains

in his chest; in another case there were severe pains in the left arm and the left side of the chest, increased by motion and lasting for three days; in the fourth case, severe pains of a general character followed a relapse; in a fifth case, pains were located for several days in shoulders and feet.

COMPLICATIONS.

The Respiratory Apparatus.—Henoch reports ulceration of the larynx in four cases. Vogel states that the laryngeal inflammation is rare but that inflammatory conditions of the cartilages may take place followed by necrosis. The same authority remarks that bronchial catarrh is frequent. Henoch noticed bronchial catarrh with frequency; pneumonia took place in several cases and gangrene of the lung followed in three. Bronchitis was present in a considerable number of our cases. Pharyngeal diphtheria is recorded as a frequent complication by Vogel.

The Nervous System.—Continued crying took place with some of my patients, especially at night. There was also jerking of the muscles and grinding of the teeth and stiffness of the neck; in older children these symptoms did not make their appearance. Delirium and hallucination were rare, although in a few of my cases delirium was very severe, and convulsions took place in two instances.

Complications Affecting the Special Senses.—Speech was absent in one case for five weeks; in a second case it was absent two weeks. Recovery of speech in one of these cases was sudden; in a second and third case it was gradual; indeed, it seemed to be necessary to teach the children to talk. Henoch speaks of complete aphasia in fifteen cases and says that it always occurs at the commencement of the remission of fever.

Hearing.—In one case in my list there was complete deafness for three weeks. This patient has completely recovered. In another case very putrid otitis media suppurativa was present.

Eyes.—Henoch reports two cases of amblyopia.

Paralytic Symptoms.—Henoch states that paralysis is rare, although one case of hemiplegia is recorded. The memory in a few of my cases was enfeebled but all have recovered.

Peritonitis.—This occurred in my last or twenty-first case. Vogel states that it may occur without perforation. In the light of recent pathology this seems possible and maybe explained as follows:

Peritonitis in typhoid fever without perforation of intestine, may originate in the following ways: 1. Microbes such as the bacterium coli commune and others, may migrate directly through the weakened and partly destroyed intestinal wall and then attack the peritonæum. 2. Peritonitis may originate from thrombo-lymphangitis and lymphadenitis by direct extension to the peritonæum over the mesenteric glands. 3. A suppurative lymphadenitis focus may rupture into the peritoneal cavity. 4. Peritonitis might originate from the rupture of suppurating infarcts in the spleen or from extension of suppuration about splenic infarcts to the overlying peritonæum.

Relapses.—Five relapses took place in my cases. Duration was from fifteen to twenty days. The attacks were less severe than the preliminary fever. The temperature in relapse cases was from 103° to 104 1-2°. Epistaxis was present in three cases. Diarrhœa was present in four, constipation in one. In six hundred and seventy cases of one observer there were sixty-five relapses.

Post-Typhoid Temperature.—There was a rise in temperature in five cases after it had been normal from one to two weeks. The markings were from one to three degrees above normal. The cause was either error in diet, fatigue or constipation, the exacerbation subsiding in about a week.

Mortality.—This is different in different epidemics. One authority makes it fourteen per cent., another eleven, and others as low as five to seven. In my first twenty cases there was not a death. The twenty-first case was taken charge of when it was virtually hopeless. In probably

ten or fifteen other cases where records have not been obtained no death has taken place. Dr. Forscheimer in the Cincinnati epidemic of 1888 treated seventy cases without a death.

The following typical cases are introduced to illustrate some of the more prominent symptoms.

Leo Keist, age ten years; American. This patient ran through a severe course of fever as to all the general symptoms. At the height of the fever he was perfectly deaf, not able to hear a shout, even when made close to his ear. During this time he did not and could not speak. The aphasia and deafness continued two weeks. The hearing returned gradually and completely, and his speech began by the utterance of a few words, which gradually improved. For a time he stammered and used the wrong words, but at this time he has regained this faculty entirely.

Henry Teller, age twelve years. German parents. Had always been a very strong and healthy boy. When first seen had been sick several days with headache, anorexia, general malaise, and was having twenty bowel movements daily. Temperature 103° , pulse 110.

From this time the case progressed in a regular, but severe case of typhoid, as regards fever, pulse, diarrhœa, etc. He had some delirium, especially at night. About the end of the third and the beginning of the fourth week his delirium was extreme. He talked and yelled, refused to take nourishment, picked his nose and eyes, making them bleed and requiring his hands to be tied. From a scratch he inflicted on his left hand, a septic cellulitis of the forearm developed, leading to the formation of an abscess of considerable extent.

Bed sores formed over the sacrum. Diarrhœa was severe during a greater part of his sickness, resisting almost everything in the way of treatment. During the height of the disease he had an extensive bronchitis.

After his temperature had been normal for a week, with no apparent cause, a relapse commenced. It ran a course of sixteen days, and during it rose spots, enlarged spleen, epistaxis and diarrhœa were present. Recovery was complete, except some ocular trouble, which is requiring glasses for its relief.

Gracie Cheever, age five years. American. When first seen had been sick one week; had a temperature of 103° with general typhoid symptoms, some diarrhœa and a little epistaxis.

About a week later extreme abdominal tympany developed, the diarrhœa persisting and the nervous symptoms becoming more prominent. Under the use of turpentine internally and externally, the tympany disappeared and the diarrhœa stopped.

During the third week she pulled all the hair out from the top of her head, leaving it bald. She was then very irritable and nervous, and her pulse was 130. She tore the bedding and clothing with her teeth, and filled her nose and ears with the fragments. She did not know anyone, did not speak, but heard acutely.

In the latter part of the third week, the left ear began to discharge very offensive pus. A little later the other ear also discharged pus which was so extremely foetid as to penetrate the farthest part of the house.

As she began to improve, she gradually regained her speech, but for some time was very nervous, easily becoming hysterical.

One day toward the latter part of the fourth week, almost in a minute, her mind seemed to clear up, and she began talking sensibly. In the third week of convalescence, swelling of the left thigh developed. It was limited to the back, outer and inner sides of the thigh and did not extend below the knee, and corresponded exactly to what would follow a thrombosis of the profunda femoris vein. The circumference of the thigh was increased, being one-and-a-half inches larger than the right. Three weeks later the swelling had entirely disappeared.

Typhoid Fever in an Infant Five Months Old.—Albert Judson Esmay, died at the age of six months and three days. His early history is as follows: At the age of six weeks he had what his attending physician called grippe; his symptoms being general bronchial catarrh, with troublesome cough, great prostration, lungs filled with mucus. This continued about five weeks when he made a fair recovery. When he was five months old he commenced to have some fever with diarrhœa, but was not regarded sick enough to have a physician in daily attendance. His temperature was not taken regularly and no complete history of his disease will ever be obtained. March 7th, three days before his death I saw him.

During the forenoon of the first day of my attendance, there was slight intestinal disturbance, with a little more than the usual tympany, and a temperature of 101° . With no previous history to assist me in my diagnosis, I believed the trouble was simply a slight gastro-intestinal disturbance, which would speedily subside. He was given pepsin cordial with bromide of potassium, and I did not regard him dangerously sick, although a slight drowsiness made me somewhat apprehensive. I was happy to find in the afternoon, that the pupils were perfectly even and that the slight symptoms of meningeal difficulty had disappeared.

On the morning of the second day I was called to see him early and found him in collapse. He was breathing with great rapidity, pulse small and rapid (180 to 200), temperature 103° ; bowels enormously distended, with slight dulness in left abdomen. I now believed that he had peritonitis, and requested Dr. Christopher in consultation. Later in the day we considered the severity of the case with great carefulness, our diagnosis resting between intussusception, appendicitis and peritonitis. We excluded intussusception and appendicitis and made a diagnosis of peritonitis, cause unknown. In the evening he had a free bowel movement, bright yellow in color and attended with the escape of a large amount of gas.

Third day.—Symptoms all more grave and all evidence of a profound peritonitis present. Everything taken into the mouth is rejected. The patient vomits a black material, abdomen is enormously distended, pulse becoming more and more rapid. Death took place in the evening, three days after my first visit.

The autopsy by my colleague, Dr. George H. Weaver, is given elsewhere.

Pathological findings.—Anatomical appearances are not as apparent as in adults, particularly in the intestines. Ulcerations and sloughings are rare in the intestines according to Vogel. As all of my cases have taken place in private practice with but a single death, I can give but little from personal observation in regard to post-mortem appearances. In my unpublished case in Keating to which I have made reference, there were found the usual hyperæmia and ulceration of Peyer's glands and the usual lesions which we find in adults. In the baby of six months and three days, to which reference has already been made and whose history has been fully given, when death took

place, the post-mortem was made by Dr. Weaver with the following result:

Autopsy.—Baby Esmay. Age six months and three days. Median section. Considerable reddish fluid in peritoneal cavity, containing some lymph flakes. Serous surface smooth and clear except about the spleen and over some of the lower coils of the small intestines on the left side. Both large and small bowels somewhat distended with gas. Vermiform free, lying upward to inner side of cæcum. Mesenteric gland much swollen, varying in size from a pea to a hazel nut; firm, yellowish grey or white on section. In mucous surface of cæcum and lower ileum the solitary follicles were swollen. Peyer's patches were prominent, slightly raised, soft, and showed slight ulceration in places.

Liver and pancreas negative. Spleen; capsule clear and smooth; on section, dark brown, rather soft; Malpighian bodies prominent. Thorax; heart firm and contracted. Lungs; hypostasis in lower lobes. Pleuræ normal. Brain and meninges, negative. Microscopical examination: Very considerable hypertrophy of Peyer's patches, also in spleen and mesenteric lymph glands.

No bacilli in either ulcerative patches or spleen could be found. Indeed, in a rather careful examination of all literature at my command, I do not remember that bacilli have been found in children dying under two years of age. It seems that we should study along this line. Eberth (quoting from Sajous' Manual for 1892) reported the case of a pregnant woman who, in the third week of an attack of typhoid fever, expelled a twenty weeks' foetus, still inclosed in its membranes. With rigid antiseptic precautions, some blood from the heart, some pulmonary tissue, and some fluid expressed from the spleen were taken from the foetus. In cover-glass preparations of these as well as of blood from the intervillous spaces of the placenta, typhoid bacilli were found. Cultures in gelatine and on potatoes developed typically. Comparative observations upon eight other foetuses, of non-typhoid mothers, demonstrated the absence of typhoid bacilli.

Diagnosis.—The diagnosis of typhoid fever in young children is frequently attended with difficulty. Quite a number of mothers have brought their children to my office supposing they were troubled with indigestion or that they had either a malarial fever or worms. Typhoid fever has been diagnosticated in many of these cases and the little patients sent to their homes and beds at once. The four cardinal symptoms of typhoid in children it appears to me, are about as follows: 1. Headache with an indifference to external surroundings, and with an apathetic expression of the countenance. 2. Fever, more noticeable at night. 3. Gastro-intestinal disturbances. 4. Rose-spots. In infants we do not, of course, find them complaining of headache.

I must confess that I do not place very much importance on the conditions of the spleen as a diagnostic feature. It is a difficult symptom to be obtained by the majority of practitioners. I do not expect to find the four cardinal symptoms present in every case, a continuation of two or three of these symptoms into the third week is enough for me to base a diagnosis. I see no reason for holding that all of these symptoms must be present before the case is said to be typhoid. Some practitioners never want to see typhoid or diphtheria, everything to them is malaria or follicular tonsillitis. We not only do an injustice to ourselves, but to the people in refraining from communicating the truth to them on account of the alarm and anxiety which it gives them. By withholding the diagnosis of a serious disease we expose the people to the infection and lessen the chances of recovery in that we become careless in treatment. I have made this remark in regard to the diagnosis and treatment of diphtheria and have been very sharply criticised for it. Every year I have treated several cases of sore throat with very small white points on its mucous membrane, as if I believed it was diphtheria. This is the safest method, not only for the patient, but for the people, and in view of certain conclusions made known at this meeting, I believe I have been justified in such treatment. If you diagnosticate typhoid

you will put the patient in bed and insist on fluid food, and give but little medicine. If we try to make ourselves believe that the case is one of malaria we will be very apt not to take these precautions, and sooner or later find our patient much sicker than if we had ordered the ordinary precaution.

Influenza or la grippe in many instances has such gastro-intestinal disturbances as to simulate typhoid fever. In my judgment we do not get the prostration in typhoid as early as influenza, and the disturbances to which I have referred are earlier pronounced in *la grippe* than in the disease we are considering.

The *diagnosis* between *typhoid fever* and *empyæma* is to me exceedingly difficult. I have recently had a case which is not enumerated in my record, which has given me great trouble. A child fourteen or fifteen years of age came under my observation after having been sick three or four weeks under the care of a homœopathic physician. This young girl was troubled with great dyspnœa but had no fever. There was flatness over considerable lung surface, and I diagnosticated effusion into the pleural cavity and placed her on potassium iodide and digitalis. She improved rapidly for several days when headache, fever and diarrhœa developed. It was with great difficulty that I could determine whether there was at this time pus in the pleural cavity or whether these symptoms were due to the infection of typhoid.

Meningitis, either simple or tubercular is difficult to diagnosticate in the face of a suspected typhoid.

The rapidity of the invasion in the simple form, and the previous history of a tubercular child usually assists us in arriving at a correct conclusion.

Gastro-intestinal Catarrh of considerable duration is another difficult disease to differentiate from typhoid. Attention to the temperature range, the presence or absence of rose spots, and the probable source of infection will usually lead us in the correct direction.

Treatment.—I am opposed from first to last to prescribing for symptoms; to-day something for the liver, to-

morrow a drug either to stimulate or diminish the activity of the kidneys, and next day something for the tongue. I am weary listening to talk about the secretions.

It occurs to me that there are about four cardinal principles which should guide us in the treatment of typhoid fever in children. The first is, rest in bed ; the second, is restriction to fluid food ; the third, is the administration of a general tonic treatment with particular attention to intestinal antiseptics ; and fourth, is attention to the temperature.

Rest in Bed.—This should be absolute and should be commenced as soon as we suspect the disease, and continued until the patient has gone from four to ten full days without temperature.

While we are getting the patient accustomed to remaining in bed and talking him into loving his fluid diet, we may employ the time in instructing the family in regard to isolating the patient and faithfully disinfecting all the excretions. Probably the best disinfectants that we can advise are sulphate of iron, bichloride of mercury and chloride of lime. The copper has its cheapness to recommend it, but it stains pails, bath-tubs, etc., to such a degree that it is objectionable. The bichloride of mercury is a valuable agent for this purpose and where care is exercised in regard to placing it in metallic vessels and regarding it a poison, nothing can surpass it. I believe, however, that the chloride of lime made up into a kind of whitewash and used freely is perhaps as good as any disinfectant which can be suggested to our families.

Diet.—The instruction in regard to fluid food should be explicit. There must be absolutely no deviation, no half-hearted directions, no concessions. The food which I directed each patient to have was milk or its equivalent in some fluid form. Children two or three years of age take frequently a quart or a quart and a half each day and they usually desire it to any other food. If it disagrees with the stomach or if they insist upon some change add a little lime water or seltzer, or a small quantity of the ordinary pop; kumyss is relished by some patients. If

they come to dislike the milk I allow them mutton, chicken or oyster broth or beef tea. If beef tea is to be used, let it be prepared as follows: Put a pound of beef cut into small pieces, in a pint and a quarter of cold water and allow it to stand for one hour, then place it over a fire and evaporate slowly to ten or twelve ounces. If this is properly prepared it is in my judgment a much better beef tea than can be obtained at any of the drug stores.

The egg water which I have suggested so many times, is frequently well taken by these little people. This is prepared by taking the white of one egg, (say three drachms) as much sterilized water, ten or fifteen drops of whiskey or brandy, and a little sugar; mix moderately. I need not say that this is very nourishing and usually relished. I use also the liquid peptonoids.

When two days have elapsed without fever, I allow a small amount of cream or milk toast, and if this is easily digested and there is no temperature upon the following day, I allow the child a baked potato with plenty of butter; if the patient goes four days upon this increased diet, without any rise in temperature and with no symptoms of indigestion, I allow them to commence to sit up and in the course of two or three days to commence to chew beef-steak or mutton chops. From this time forward there is a slight increase in the amount of food allowed each each day until they are upon a diet which is sufficient to nourish them. I need not say to a medical person that to maintain a child on fluid diet for this length of time, in the face of its solicitation and importunities and those of the parents, which are frequently greater than the patients, is no easy task; and yet if we desire a small mortality it must be insisted upon. It will be noticed that I had three or four relapses in my twenty-one cases. In every instance it was brought on by my assistants or myself having yielded to the importunities of the little patients or some of its friends. We have been accused of starving the patients, but when we have deviated from the course suggested, in almost every instance some bad symptoms have been the result.

Medication.—The general tonic or restorative medication should be some pleasant combination of pepsin with a mineral acid and a concentrated nutrient. A great array of medicine is entirely useless in this disease. I have treated a child throughout a case of typhoid fever with three half-ounce bottles of medicine; the first containing deodorized tincture of opium, the second, aromatic sulphuric acid, and the third, veratrum viride. This was years ago. More recently I have come to make the following prescription which is nutritious, helps digestion and contains a mild intestinal antiseptic.

Pepsin Cordial, ℥ i.

Syr. Hypophos. Co., ℥ iv.

Ac. Sulph. Arom., ℥ i.

Aq. M. P. qs. ad. ℥ ii.

One teaspoonful well diluted four times a day.

When there is constipation I substitute acidi muriatici.

It will be observed in a large number of cases of typhoid which we have at this day, that constipation is present. I have never seen my way clear to use purgatives, which many of my colleagues seem to feel safe in doing. A general order is given that the bowels shall be moved every other day by glycerine enemata.

In a few instances when the temperature has persevered for a long time, after convalescence should have been well advanced, I have felt that a mild laxative would be of service and it has been administered. I do not remember at this moment that its use has been followed by any ill effects. I should be happy for suggestions in this respect from the fellows in the society.

Temperature.—I have learned that a moderate temperature is not to be dreaded, and unless it goes to 103°, I am not usually in the habit of administering any of the antipyretic remedies.

When such medication has been called for we have given phenacetine. I can definitely state that from two to three grains of phenacetine given to a child from eight to

ten years of age with a temperature of 104° , will reduce it almost without a doubt to 100° or $100.1-2^{\circ}$. I have tried this so many times that I can speak with definiteness concerning these results.

I am in the habit of controlling the temperature by the use of the cool bath, where children do not oppose it in a great degree. I believe in it decidedly but do not order it in those cases where the children seem to be frightened or exhausted by it. With the meagre facilities found in the majority of private residences, I do not believe that the cold bath will do as much as we have been led to believe. I had an adult recently covered with a cold sheet for an hour and a quarter with a reduction of only a fifth of a degree; and a child to whom I have already referred whose temperature marked $105.6-100^{\circ}$, the continuous cold sheet did not reduce it to any considerable degree. I believe the treatment useful however, and the child made a happy recovery.

Treatment of Individual Symptoms.—For the *extreme headache*, phenacetine does good. In a few cases where there is very much nervousness and the phenacetine does not seem to control the pain, I am in the habit of making a combination of the bromide of potassium with antipyrine. I have never had any trouble with phenacetine, but I use antipyrine cautiously, and have discarded antifebrine. The *vomiting* is best controlled by a mixture of the sub-nitrate of bismuth with a fraction of a drop of carbolic acid. In the mixture I always exhibit glycerine as it conceals the taste of the acid.

When there is much *diarrhœa*, I find nothing which gives such good results as turpentine, either alone or with the arom-mineral acid with an anodyne, made into an emulsion. This is an old remedy but I can commend it to the attention of the younger practitioners. I may add that the turpentine, mineral acid, and a very small amount of an opiate in combination with syrup of acacia, makes an excellent emulsion. I recognized the great value of salol, and the salicylates in the treatment of these diarrhœas. The distention of the bowels which comes from

great *tympany* which is present in some cases, is controlled by the intestinal antiseptics, including the remedies which I have already noticed for diarrhœas, to which I would add the bichloride of mercury and asafœtida. I have no experience with either thymol or naphthaline. Concerning asafœtida I desire to say a word. It is old-fashioned and not very much used by the younger practitioners. In my judgment however, it is, one of the most valuable drugs for many diseases of children, given either by mouth or rectum. In combination with a little paregoric and calcined magnesia with carminative waters, it is an excellent remedy for colic in children. It is exceedingly valuable in distention of the bowels which I am particularly discussing, and may be given either in the above combination or by rectum, using the ordinary tincture with a little water. When the distention is great, I am in the habit of placing these little people in the knee-elbow position when giving the enema.

When there is a tendency to *nose-bleed*, I am in the habit of administering the aromatic sulphuric acid with ergot. When the bleeding continues and the nose must be plugged, a solution of alum is preferable to the iron solution.

Although *intestinal hæmorrhage* has not been present in any of my cases, I should depend upon the acetate of lead, ergot with opium, very cautiously given. In cases of perforation I have not quite yet determined whether I would depend upon rest and the remedies suggested above for intestinal hæmorrhage, or whether I should advise laparotomy. We have recently had a case of successful laparotomy following intestinal perforation in our city and whether it will result in the saving of life or cause the death of a large number before another successful case is recorded, I do not know.

During the last weeks of typhoid I always stand ready to stimulate the heart. We have such a variety of complications that come from failure of this organ that we cannot be too watchful. *Nux vomica*, *digitalis* and the alcoholics in full doses are indicated at such a time as

this. I have recently had a case of *arterial embolism* but it was in an adult and cannot be mentioned in this connection. It is so rare and its consequences so terrible that I trust I may never see another case. Amputation in the upper part of the left thigh was necessary, the plugging of the artery taking place high up in the pelvis. At some future time and in the proper place I will record this particularly rare and interesting case.

Dr. Hare says (System Therapeutics) that the occurrence of bed-sore is the sign of a poor doctor. I must plead guilty to his accusation, for in a few cases the prostration is so great, the powers of life so poor and the conveniences for avoiding this complication so limited that occasionally it does take place. I am happy to say that the mental disturbances which are present in quite a number of cases have all yielded when convalescence has taken place. My chief dependence for their improvement has been a good generous diet with the milder tonics.

My attention has recently been called to *sepsis* which sometimes follows the collection of pus in the middle ear in the course of typhoid fever. A gentleman with whom I had the conversation, believes that we do not inspect the drum-head with frequency enough and that an infection takes place more frequently than we suppose, from pus in this particular organ.

CERTAINLY many a discomfort and even sickness in a child is conditioned upon the fact that it has been compelled to eat in order to get its thirst satisfied, and often has to suffer thirst because the overstimulated and injured stomach will take no more nourishment at irregular and too short intervals.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

IN general it will give greater satisfaction to use boiled water systematically, even where there is no apparent urgency for it, for very young infants.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

TYPHOID FEVER IN INFANCY.*

BY W. S. CHRISTOPHER, M.D.,

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THE occurrence of well-marked cases of typhoid fever in infancy, is sufficiently uncommon as to excite comment when individual cases are reported, but it by no means follows that the disease itself is rare at this time of life, as the text-books would seem to imply.

I have met very frequently in infants, mild cases which seemed to justify the diagnosis of typhoid fever. In no instance have I been able to confirm the diagnosis by a post-mortem examination, as the cases have invariably progressed to a satisfactory termination. They have always occurred, however, during the prevalence of typhoid fever in adults.

It is my purpose to present, briefly, the clinical picture, as it has been presented to me.

The febrile movement is usually very light. Its duration varies from one week to three weeks, but most commonly lasts from ten to fourteen days. The temperature curve is decidedly more irregular than in typhoid in adults. The remittent type prevails, but in a few cases an irregular intermittent type of fever is present.

On the part of the bowels, constipation is usually present. Constipation, however, for several years past, has been usual in this disease in adults, in the cases which I have seen; and whether this symptom as seen in infancy is peculiar to this period of life, or whether it is a characteristic of the prevailing epidemic, I am unable to say, as it is only during the past four years that my attention has been directed to typhoid fever in infants. In one case, a

* Read by the Recorder before the Am. Ped. Soc., Boston, May 3, 1892.

girl, five months old, tarry stools, evidently hæmorrhagic, occurred on the ninth day. This seemed strongly confirmatory of the diagnosis.

The physical examination of the abdomen reveals some flatulence, but never extensive meteorism or marked distention of the abdomen. Enlargement of the spleen can almost invariably be made out by percussion, and almost never by palpation. Upon the skin of the abdomen, the typical roseola appears. When carefully looked for, the eruption will almost invariably be found. It certainly occurs in as large a proportion of the cases of typhoid, as does the scarlatina eruption in that disease. I have been unwilling to make the diagnosis of typhoid in infants unless the eruption was present. The spots occur as early as the third day, and rarely exceed eight or ten in number; more often but three or four are to be found. In size they are about one-half as large as a pin-head, and do not increase to a greater size than a pin-head. Their color is a distinct rose; they are never elevated, and disappear so readily under pressure that they may almost be said to recede in front of the finger without any pressure. This delicacy of the spot is an important distinguishing feature. A convenient way to observe the reaction of the spot to pressure, is to put a finger on either side of the spot, and gently stretch the skin between the fingers.

The pulmonary symptoms are particularly important. The specific bronchitis which is always present in the adult to a greater or less degree, is exaggerated in the child, and becomes the prominent feature of the disease. It is usually the symptom for which relief is sought. While I can recall but two or three cases in which bronchopneumonia has supervened, it seems probable that in many instances, pneumonia is but a symptom of existing typhoid. Certain it is, that I feel it my duty to investigate every case of infantile bronchitis for other evidences of typhoid. The suggestion of Sevestre, and the recent investigations of Lesage, on the bowel origin of bronchopneumonia; the presence and possible ætiological influ-

ence of the bacillus coli communis in such cases; and the contention of Rodet and Roux that the Koch-Eberth bacillus is but a modified form of the bacillus coli communis, certainly furnish food for thought and investigation in this direction.

Another very important feature in the clinical picture of infantile typhoid fever is the condition of the tongue. This organ does not enlarge, nor does it become flabby, nor indented by the teeth when they are present. It remains of normal size and shape, and is covered by a white or creamy coating which leaves the edges and tip free. Often the redness of the tip extends backwardly in the median line for a short distance. The front portion of the coating is rather thinner than the coating over the main portion of the tongue, and the fungiform papillæ may be seen through it, but later they are often completely hidden. The uncovered edges and tip of the tongue are bright red, particularly after three or four days have elapsed. The tongue always remains moist. The appearance of the tongue is so well marked as to be almost diagnostic. That this is truly the tongue of typhoid fever may be confirmed by the appearance of that organ in older children, in whom the same appearances are found, in cases which are unquestionably typhoid fever.

The face does not assume the typhoid expression, nor do severe, nervous phenomena ensue. I have never seen nose-bleed in one of these cases.

The diagnosis is to be based upon the presence of fever, the bronchitis, the peculiar tongue, the roseola, and the enlarged spleen. In the absence of any one of the first four of these conditions, I should be unwilling to make a diagnosis of typhoid fever.

During the past winter the greatest difficulty in diagnosis has been in differentiating from influenza. In words, the differentiation is very easily made, but practically there is much difficulty. Influenza is a much more serious affection. It usually produces a diarrhœa characterized by the presence of so-called "casein lumps" in the stools.

Pain is almost invariably present, and can with considerable certainty be shown to be muscular. Influenza is further characterized by the instability of the symptoms; suspicions of peritonitis, pneumonia, meningitis, etc., alternate with each other in rather rapid succession.

It is not without significance that so small a fraction of the adult population develops typhoid fever. It is very probable that many secure immunity through slight and unrecognized attacks of the disease during infancy. The treatment of the cases is quite simple. The rigid diet of adult typhoid is hardly necessary. Dilute hydrochloric acid is sufficient medication for the febrile process itself. Close attention, however, must be paid to the pulmonary conditions, and the customary treatment in such cases employed.

DISCUSSION.*

Dr. KOPLIK.—I wish to express my appreciation of a point made by Dr. Northrup, that is, that the post-mortem appearances he has found in these cases of enlargement of the solitary follicles, enlargement and ulceration of Peyer's patches and other conditions which in the adult are so characteristic of typhoid fever might in children, at some future time be proven, perhaps, to be due to something else. I do not think Dr. Northrup means that he thinks it is now, but that there is a possibility.

Dr. JACOBI.—With what conditions and diseases does he think this change in Peyer's plaques is connected, and have the plaques been examined sufficiently to say that they contain the same microscopic elements that typhoid fever will show in the plaques; particularly what were the conditions in which Peyer's plaques were so frequently found ulcerated or enlarged?

Dr. NORTHRUP.—Ulceration is not such a constant feature as far as my observations go, but marked enlargement of them is a familiar sight. I am speaking of gross appearances now entirely. This friend, a pathologist in a prominent hospital in New York, started this report that they had a two-year-old child dead from typhoid fever. I did not realize what a strong resemblance there

* Dr. A. Jacobi in the chair.

was to the adult typhoid fever at that time. I believe that in the two thousand autopsies I have made there have been easily one hundred and fifty that have had Peyer's patches so distinctly swollen and elevated that were they shown to the men accustomed to make autopsies on adults they would say that patient died from typhoid fever. I am led to think that, from the experience I had with these very competent men. I simply want to make that point a little stronger if I can to those who do not see routine autopsies in the Children's Hospital. Swollen Peyer's patches and mesenteric glands are common. I could point to two hundred autopsy records where marked swelling of Peyer's plaques occurred.

Dr. JACOBI.—In what diseases?

Dr. NORTHRUP.—In all kinds of intestinal diseases. Sometimes they die in convulsions, sometimes in children well-nourished who have died of acute pneumonia. I can find no constant relation. I suppose many of them are fed not quite as Dr. Rotch would feed them from his laboratory.

There is one point in regard to Dr. Earle's paper. I contend from my experience with the autopsy following my own examinations, that I cannot be relied upon to tell whether a spleen is enlarged from percussion. I decline to accept any one's testimony of enlarged spleen in an infant by percussion. If by palpation he feels the spleen enlarged enough to crowd below the ribs I would accept it.

Dr. BLACKADER.—I do not understand Dr. Northrup as at all denying the fact that we may meet typhoid fever in young children, but simply that in the New York Foundling Hospital, inflammatory changes in Peyer's patches have been so frequently observed as to throw doubt upon our post-mortem diagnosis of typhoid fever in children from that fact only. I infer that that is all that he intends, and it is most valuable information. I think I have met with a few cases of typhoid fever in infants, although I quite admit that my diagnosis was held very much in reserve, and was given only after as careful exclusion of other diseases as was possible. Looking at the facts supplied by Dr. Northrup in an *a priori* light, we might perhaps infer that, if Peyer's patches in infants are so liable to take on inflammatory action, all the more easily may they become a nidus for the bacillus. I have myself always referred the comparative immunity from typhoid, which is more or less characteristic of infancy, to the fact that young children are not exposed in the same way to

the contagion. In general, up to the age of two years, children are fed with cooked food. Certainly the very great proportion of their food is of this character, and more care is, I think, exercised over the portion that is not cooked, so that their immunity may in great measure be due to this fact. In regard to the diagnosis of typhoid, I quite agree with Dr. Northrup that in infants there is difficulty in determining enlargement of the spleen by percussion, and the question arises, what symptoms of typhoid have we that can be relied on in infancy? Tenderness over the iliac region is a symptom difficult to elicit; the stools almost never can be regarded as characteristic; slight tympany is another symptom upon which, in infants, much importance cannot be placed. We have then, I take it, only the prolonged febrile reaction becoming more or less hectic in character, the somewhat rapid emaciation, and more or less tendency to diarrhœa. We may also have, but only in the small proportion of cases, an eruption; in a larger percentage, indications of delirium; and in a still larger percentage, of slight bronchitis. These are not very definite symptoms, but I do not think that practically we can make them more definite. Nevertheless, a careful observer, after excluding other causes of trouble, and especially in the presence of other undoubted cases of the disease, is justified, I think, in falling back upon the diagnosis of typhoid fever. Several such instances have occurred to me in my practice. I have, however, had no cases in which there was any actual demonstration of the bacillus.

Dr. NORTHROP.—That is just what we want. Here are Dr. Winters, Dr. Huber, Dr. Seibert and others, who represent a vast clinical experience. I should like to know how many have seen cases of typhoid below two years. Those cases of Dr. Earle's are undoubted typhoid fever. Chicago is so full of typhoid that it soaked into them, and they could not help that, but that is exceptional.

Dr. WINTERS.—At present I do not recall a single instance of typhoid fever in a child under two years of age, though I should be inclined to say that in all probability I have seen such cases. It seems to me that the reason given by Dr. Blackader with reference to its non-occurrence in children under two years of age is a very good one, that they eat cooked food and even the water the children are given to drink is almost always boiled, and therefore, they are not brought into contact with the bacilli of the disease.

I should like to say a word with reference to some of the diagnostic points of typhoid fever which have been spoken of. I understood Dr. Blackader to say that we *sometimes* meet with the rose-colored spots, and Dr. Christopher in his paper stated that they were *almost always present*. It is stated by very good observers, and in many of the text-books, that the rose-colored spots are frequently absent in the typhoid fever of children. I began investigation with reference to the diagnostic symptoms of typhoid fever in young children, with the belief thoroughly fixed in my mind that the rash was very often wanting. I can now assert that the rash is almost constantly present, so confident am I of this that I should not be at all willing to make a positive diagnosis of typhoid fever in young children in the absence of the rash. There are two peculiar points with reference to this rash, these are, first, that in some instances there are very few spots, three or four, perhaps, and not observed in repeated crops as they often are in adults; again, there are other cases, quite as numerous as the former, where the rash is very abundant, the entire abdomen, the chest, and portions of the back being extensively covered with rose-colored spots, and in these cases the spots come on in repeated crops and persist throughout the time that the lesion in the intestines is progressing. And again, that point which was made by Dr. Christopher with reference to detecting these spots, one which I have observed repeatedly for years, but which is not mentioned in the text-books, that this spot can be identified by placing two fingers on either side of it, and stretching the skin and causing the spot to disappear in that way, when you would not perhaps detect it by simple pressure. A statement was made in Dr. Christopher's paper that abdominal distention was not at all common in young children. It seems to me that a considerable distention is present in most cases of typhoid fever. One statement in Dr. Christopher's paper which was contradictory to a statement made by Dr. Earle should be taken exception to, in my opinion, that is with reference to diet. He said that the strict rules which are observed with reference to the typhoid fever of adults was not necessary in the typhoid fever of children. It seems to me that this is a grievous error, and that the law laid down by Dr. Earle of the great necessity of fluid food throughout the disease, until the child has been free from fever several days, is absolute.

Dr. HUBER.—I have seen very few cases of typhoid fever in children under two years. One I remember very distinctly in your (Dr. Jacobi's) service in the old college in which we simply made the diagnosis of gastro-intestinal disturbance, and it was only when you pointed out certain features that its typhoidal character was recognized. Within the past six months I saw another instance. In that case there could be no doubt at all for there were five older children sick of typhoid fever at the same time, and this little one made six. Those are the only two instances that I recall at the present moment under two years of age. In one case the diagnosis was made by Dr. Jacobi, and in the other case there were five others sick at the same time. They were about eighteen months old.

As regards one of Dr. Earle's strong points. He insists that a period of four days should elapse after the temperature falls before the absolute liquid diet be changed and the little patients allowed to get up. I think this period is far too short. I can recall distinctly two cases in children between eight and ten, in which death occurred from not observing this precaution. In one instance the little one had been free from fever over a week; injudiciously the parents had allowed him to use a velocipede. The following morning peritonitis, due to perforation, developed; death within twenty-four hours. I remember another case in which a child had also been free from fever a week or so, was allowed a little meat. There was perforation and death shortly; so that I think the period in place of being under a week certainly ought to be a little longer.

Dr. SEIBERT.—I may have seen cases of typhoid fever in children under two years of age. I distinctly recollect that I never made that diagnosis. I did make that diagnosis in a pair of twins I saw a year ago in the practice of another man. In that family typhoid fever had been noticed within two months among adults, and in these two children all symptoms were mild, but there was one thing very characteristic. They presented direct typhoid symptoms regarding their nervous system which children who suffer from gastric fever, even continued high gastric fever, hardly ever present, I mean tremor of the muscles, stupor, etc. How far that diagnosis was correct or not, of course, must be left in doubt. These twins were two-and-a-half years old. I recall these cases because but four weeks ago I saw these same children in consultation just twenty-four hours before they died of septic scarlatina.

There is a form of gastritis or gastric fever in infants that I have seen a few times within the fifteen years I have been in practice, that I have termed severe acute gastritis and have described in the *Jahrbuch für Kinderheilkunde* for 1884. In one case four months old, the lowest temperature was 104° and the highest 106.7° in eight days. It was the eighth day when I saw the child. The diagnosis by one physician was typhoid fever, by the other intermittent. There was no swollen spleen, at least it could not be felt. The child would play with its fingers with a temperature of 104° , would take all the nourishment it could get (mother's milk), and only had two or three somewhat cheesy passages in twenty-four hours; very little tympanites. The diagnosis gastritis was made because on leaving milk away for twelve hours, the temperature dropped from 106° F. to the normal without medication.

Cases of this kind may be taken occasionally for typhoid fever.

I would like to make one or two remarks in regard to the treatment of typhoid fever in children or adults. I have been in the habit of treating all cases of typhoid fever in the hospital in my service, as well as in private practice for the last five years, by systematic irrigations of the colon, performed according to the severity of the case, if severe three times a day, if mild twice a day, if very mild once a day. My object is simply to take away whatever typhoid poison accumulates in the lower portion of the large bowel, because absorption takes place from there. This does not cure the disease, does not abort it, but aids in taking away some of the poison that may remain for hours in the body. By removing it the danger of absorbing more of that poison is certainly limited. This method was originated by Cantani, who used it in cholera; Mosler using it first in typhoid. The latter made the injections with tannic acid. I make them with plain water. At first I used a large catheter. I abandoned that because I had a large hæmorrhage evidently due to touching an ulcer in the colon in a boy of ten. My experience with this method is, that tympanites soon subsides, diarrhœa, if intense, certainly gets better and insomnia seems to be influenced by it. We have kept the records for one-and-one-half years in the hospital. We have used it in a large number of cases, and I wish some of the members who have a chance would try that. It certainly would not harm their patients.

There is one thing I have not done in the last two years. Whenever I have a patient with diarrhœa, distention of the abdomen, intestines and stomach, I take away all milk until the diarrhœa has ceased. I feed the patient by fluid diet, white of eggs, etc., but take away milk on the same principle that I take away milk in children suffering from intestinal catarrh. It has served me well. My other treatment is simply to give muriatic acid. I have never prescribed an antipyretic in typhoid in four years, never given a bath except to wash the patient for cleanliness.

Dr. NORTHROP.—May I ask Dr. Huber what he regards the one constant symptom for diagnosis in young children, and also whether he can percuss out an enlarged spleen in an infant.

Dr. HUBER.—No, sir; I cannot. A continuous temperature which, after a careful examination, cannot be explained on any other ground, and the existence of other cases of typhoid fever in that neighborhood, under such conditions I have no hesitation in making the diagnosis. The examination is a very careful one and the diagnosis is one of exclusion. In the greater number of cases in recent years the spots were present. The continuous temperature is the most constant diagnostic point.

Dr. ADAMS.—It is almost impossible to discuss logically a question of this kind, owing to the numerous points brought out by each essayist. In the first place, the diagnosis of typhoid fever in young children is difficult to make. That the disease may occur I do not pretend to question, but that the diagnosis is uniformly made I do very materially question. In other words, if many of these cases of typhoid fever in children under two years of age exist, then some of the best practitioners that I know have failed to make the diagnosis. That there is any one constant symptom in young children by which we can positively diagnose the disease—other than by post-mortem appearances, and even in that I somewhat agree with what Dr. Northrup has said—for I have seen in the Children's Hospital, during the past sixteen years, in autopsies there, very many cases that have proved to be cases of typhoid fever without having had any of the symptoms that are characteristic. I see typhoid fever in young children, but it is by no means common. I have recently had rather a unique experience with this fever in a single family, and although having the utmost confidence in my judgment, the members have positively re-

refused to believe my statements as to its non-contagiousness. We are taught by the books and probably by our own experience, that this disease is communicated generally through the water, or that the poison enters the system either through the respiratory or alimentary tract. I was attending a clergyman in consultation who had the disease, and a member of his congregation, a patient of mine, had visited the house two or three times, but had not gone into the sick-room. In about two weeks I was called to see her child, that had been complaining for several days. There was a history of decided chilly sensations but no rigors. Child was four-and-a-half years old. I found a very high temperature, so I examined the patient very carefully. The hyperpyrexia persisted for three days, but the tongue was perfectly clean, not a rose-spot, no diarrhœa, no vomiting, and the child was gradually becoming worse. The temperature had remained at a high point, and finally, on the fourth day, as the abdomen was distended, the child delirious and the tongue perfectly clean, not red, I confessed to the family that I did not know what the trouble was, and asked for a consultation, which was refused. The fever subsided somewhat, diarrhœa set in and typhoid fever was now unmistakable. From the very beginning, when I first saw the child with the high temperature, I instructed the parents to disinfect the evacuations with the ordinary commercial carbolic acid in the vessel and take every precaution to prevent the spread of the disease, if it was typhoid fever, for I confess I suspected it. As the child was convalescing an older child was taken with the disease. Her temperature ran up and I left her with an evening temperature of 106° and sometimes higher, and in the morning a temperature of about 102.5° . In this case the house was built by the occupant, who is a builder, and is furnished with the most approved plumbing. It was inspected by the health department which failed to find any local cause. I investigated the milk supply and the man who supplied the milk had not had any typhoid fever on his farm, and its origin from the milk supply would be excluded because the first child had not drunk milk until it was taken sick. As to the water supply, I am almost afraid to open my mouth on that point since very many of the gentlemen have had an unfortunate experience as they claim with Washington water. We think that Washington water is not productive of disease. Of course, I think the same cause prevailed in both cases.

With regard to the presence of typical symptoms, I believe they are not always present. The typical symptoms which we teach our students are to be found in adults, I do not find in very young children. Of course, above eight years we get very many of these symptoms. In one of these cases (the younger) the rose-spots were never present. I examined carefully every day and failed to find them. In the second child the abdomen and chest were perfectly peppered with rose-spots from almost the beginning of the disease.

I am very glad indeed to hear Dr. Seibert come out so strongly on the treatment of this disease. In the first place, too much attention is paid to the elevation of temperature, that is, to a high temperature. A high temperature does not necessarily kill; that is, a continuous high temperature is a dangerous symptom, but a high temperature in the afternoon with an extended daily excursion in typhoid fever is not dangerous. Therefore, I should say that we should pay more attention to the daily excursion in the treatment of the disease than to a relatively high exacerbation. In one case the temperature was 105° or 106° , and she was delirious several days. In her sister, an older child, the temperature under the tongue ran as high as 106.4° without the slightest manifestation of cerebral disturbance. In fact, it has been as much as I could do to keep the parents from yielding to her request for books and playthings. The tendency of the average practitioner is to give something in the afternoon, because in the case of typhoid fever the temperature goes to a certain point. I confess, a few years ago it was my routine practice and instruction in the Children's Hospital to let them alone if the evening exacerbation did not reach 103° . If it passed beyond 103° then we were to sponge with alcohol and tepid water or alcohol and bay-rum every half hour until the temperature was reduced below 103° F. If it passed beyond 104° then we would first try quinine, and if it had any effect all right; if not, we tried phenacetine, and when the other antipyretics came out I tried those, but with some unfortunate results. Some very rapid reductions of temperature required the greatest care to resuscitate the children, so that my experience has led me to discard as routine practice, any method of treatment so far as antipyretics or drugs are concerned.

With regard to the diet, Dr. Seibert has mentioned, that very many times our liquid diet interferes with digestion and causes what we attribute to the disease process,

that is, it causes tympanites. In very many of these cases by varying the diet we relieve them. Beef-tea can be given. I have seen beef-tea produce not only colic, but very violent diarrhœa, where milk would act very nicely, and I have seen the opposite; and where one would agree and the other would not.

I think that Dr. Earle certainly did not fear relapses. Four days is a very short time in which to keep a child on liquid diet. After the temperature has subsided I usually keep them flat on the back a week, and on the same kind of diet, gradually returning to solid food.

With regard to irrigation. I have never practiced irrigation for typhoid fever, and I must confess that while the principle of treatment would strike one as being particularly good, nevertheless, I should hesitate very much to recommend this in young children for more than one reason. In the first place, the object is to keep the intestinal tract as quiet as possible, that is, to put the intestine in a splint, so to speak. Again, I have never seen a young child, at least a child under eight years of age, that would submit to any such treatment. It is with the greatest difficulty sometimes when we want to give injections of food that we can keep them still. Of course, if the child is very low you might possibly do it, but if it is rational at all it would be a very difficult matter to irrigate. I think it is always advisable to give intestinal antiseptics.

Dr. NORTHROP.—I came all the way from New York to ask two questions, and we are getting at it gradually, but I beg you to ask this section to answer these two questions: In the experience of these gentlemen does typhoid fever occur under two years and how often; second, how do you detect it?

Dr. JACOBI.—The first question has been answered. A few gentlemen have made the statement that they have seen the disease, though they consider it to be rare under two years of age, but that they have seen it and made the diagnosis. The second question was, what are the symptoms by which you recognize it. That too has been alluded to by every one of the speakers, and certainly they have done their best to explain their meaning.

The question is stated by Dr. Northrup, who tells us that in two thousand post-mortem examinations he has not found positive proof of a single case of typhoid fever in a child under two years, and in many more thousands of living he has not been able to make the diagnosis, nor

has his colleague, Dr. O'Dwyer, in the same institution. Does it ever occur in the practice or to the knowledge of the gentlemen here present? Some of the gentlemen have answered that they have seen cases, but that they are rare. Then the question is whether there are positive symptoms by which to recognize the diagnosis. That has been answered as well as it is possible to answer. So you understand the point now.

Dr. ROTCH.—I should say, Mr. President, they are rare. The diagnosis has to be in young babies and children very much the same as in the abortive types of typhoid fever. We know how difficult it is to make a diagnosis in the abortive type. Has the pathology been spoken of at all?

Dr. JACOBI.—The pathology has been spoken of.

Dr. ROTCH.—I suppose the diagnosis would be very closely allied with the pathology, that you would make your diagnosis from the pathological conditions, and the pathological conditions are very slight as a rule, and hence the symptoms would be slight in proportion, therefore, it would be more difficult to make the diagnosis. In the aborted cases of typhoid fever in the adult, we arrive at our diagnosis by exclusion in a large number of cases, and I suppose that is the way we arrive at our diagnosis in the young baby. Competent observers have reported that they have seen cases.

Dr. JACOBI.—Dr. Northrup says he has never seen a case. Dr. O'Dwyer says he has never seen a case after twenty years connection with the asylum. Dr. Northrup makes the statement, that swelling of Peyer's plaques is not a distinctive sign of typhoid fever, and that in two thousand cases of autopsies he has found the swelling, not the ulceration of Peyer's plaques, one hundred and fifty times; so that the swelling of Peyer's plaques, he did not speak of ulcerations, certainly is not a conclusive symptom.

Dr. ROTCH.—Has any one else seen any cases of autopsies of typhoid fever in young children? Have any others been reported?

Dr. JACOBI.—They have not been reported here, but a few of the cases reported here were absolutely conclusive as to the nature of the case.

Dr. ROTCH.—I suppose you do not get, as a rule, ulceration in the young subject, and of course, Dr. Northrup may not have seen the cases, but there are rare cases of every disease and you have to take the experience of men all over the world. For instance, cases of acute œdema

of the brain coming on in a few minutes and producing death. Some physicians have never met with these cases and yet they occur. In children the type of typhoid is mild aborted and corresponds to the disease in the adult, running a short course and the diagnosis being made by exclusion. If you can detect the enlargement of the spleen that is one point. If you do not detect it that does not militate against the diagnosis, for so many cases of enlargement of the spleen are overlooked and cannot be detected.

Dr. EARLE.—We would like to hear from the presiding officer.

Dr. JACOBI.—I would say that I have seen typhoid fever under two years, have made the diagnosis and have seen a few autopsies. The diagnosis in most cases is first suggested by exclusion. When you see a case that has been sick for some time, where there has been a fever and you find no cause for that fever, no local disease, you suspect typhoid fever at all events. It may be some other form of infectious fever; but this is a ground that I need not go over. It suggests itself to everybody. Seven years ago I published (ARCHIVES OF PEDIATRICS, 1885) the report of twenty-five cases of typhoid fever, of which the following is an abstract. The cases, however, were all more than four years old. They were Bellevue Hospital cases. A chill was known to have existed in seven out of the twenty-five; abdominal pain was present in fourteen; diarrhœa in fifteen; constipation in six; blood in the stools in three; epistaxis in six; spleen enlarged and felt in sixteen; roseola which appeared between the fifth and tenth day and lasted from five to ten days in fourteen. Still, the mortality was twenty per cent. These were cases over four years of age. I have seen them below that. I have seen them below two years, and the case of a baby that died at the age of three weeks, and another at six weeks. These were exceptional, but a few more cases of the kind are on record. These few cases have been well observed and autopsies have been made on them.

Now in regard to the usual way in which to make the diagnosis. If I see a case that has lasted for a little while with a moderate amount of fever, one, two, three or four degrees above the normal, without any local symptoms to account for it, I should suspect the fever. If I found, and in a number of cases I have made the diagnosis through that symptom, if I found on careful observation that there are two temperature curves in twenty-four hours for days

in succession, it is typhoid fever, unless there were a very good reason to take it for an intermittens duplex which certainly is a very much rarer and more dangerous disease and would be recognized soon. The double curve means typhoid fever. Further, if I found in such a doubtful case that a fever of three, four or five degrees is exceedingly well tolerated by the child, we have heard that a temperature of 106° and more was well tolerated, that the child wanted toys, etc., there is a strong suspicion that it is typhoid fever. There is not a disease except typhoid fever, in which a high temperature is so well tolerated provided the case is uncomplicated. A high temperature lasting long, the child feeling perfectly well and wanting to play, would be a very strong suggestion to me that that was typhoid fever. When there is double curve it is typhoid fever. When there is a roseola I should say that it is typhoid fever. When in addition to that, as I have found it a number of times, I can feel the spleen under the ribs, it is typhoid fever, so that there are a few symptoms at all events which are positive. Now, then, there is another symptom which has served me within the last four or five years, that is the diazo reaction. It is not always conclusive, for several reasons. In the beginning of typhoid fever it is not conclusive, about the end of typhoid fever it is no longer conclusive, during the ten or twelve intermediate days it is certainly conclusive in the large majority of cases, and when you find it and can exclude pneumonia or acute tuberculosis it means typhoid fever. As we know it is found in acute tuberculosis just as well, in a number of cases of infectious pneumonia just as well, but when those two can be excluded and you have to deal with a case that has lasted a week then it is conclusive. One case I have in which that led me to the diagnosis. Those are all the points that I can make. All the rest are very doubtful, except the presence of bacilli in the stools if they be found. Roseola will not always be present.

Dr. EARLE.—In closing I have but a few remarks to offer and they will be directed to the consideration of three topics which have been criticised in the discussion; namely, relapses and diet, and finally a very brief consideration as to whether children under two years of age are ever afflicted with typhoid fever. I was afraid of relapses and guarded against them and the additional diet which was allowed at the end of two full days without fever, was very bland and easily digested, and when the little patients were restricted to it, as far as my observation ex-

tended, no relapse took place. At first it would be a little milk or cream toast, then the following day a softly cooked egg, and the third day a baked potato with considerable butter, and always with the instructions that if flatulency or any discomfort was produced a return to fluid-food must take place. This care and general increase in food was exercised for at least two weeks before they were taking what I believed was sufficient for their nutrition.

It is probably hardly worth while for me to try to make Dr. Northrup believe that children under two years of age have typhoid fever. I admit the value of his very extended pathological study and observation, but notwithstanding this a considerable number of our ablest practitioners believe they have seen this disease in children under the age specified. In the first place we have seven cases from Vogel, eight from Hensch, fifteen from Montmollin. Murchison's case mentioned in Keating's Encyclopædia, the unpublished case of mine in the same volume, two or three cases by Dr. Jacobi and three cases which have recently taken place under my own observation. This gives us thirty seven or thirty-eight cases recorded at the present moment. I will admit that there is one important factor lacking in probably four-fifths of these cases, that is the presence of bacilli. But we should remember that in all probability the majority of these cases were observed long before we depended upon this as one of the essential factors in the diagnosis of typhoid fever. I mentioned in the body of my paper that this is the particular line along which we must study. More recently however, we have the experiments and investigations by Ebert which comes up fully to our diagnostic demands, and in my judgment it will be but a short time before we are in possession of as many facts regarding typhoid in infants as we now have concerning it in adults. We will never see as many among infants with the disease because their exposure to the infection will not be as frequent, but we must expect an occasional case.

WITHOUT doubt, many disturbances of digestion are to be explained by a deficiency of water, certainly many more than are due to an excess of it, as it is so quickly absorbed.—A. Jacobi, M.D., in "The Intestinal Diseases of Infancy and Childhood." (Davis.)

Clinical Memoranda.

A CASE OF CHRONIC INTERNAL HYDRO- CEPHALUS.

BY JOHN THOMSON, M.D., F.R.C.P., ED.,

Extra Physician to the Royal Hospital for Sick Children; Lecturer on Diseases of Children,
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ELIZ. D—, æt. fifteen weeks, seen with Dr. Oliphant Walker on April 8, 1890.

Family history.—She is the only child of strong, healthy parents. There is no history of syphilis. The mother had a severe attack of erysipelas of the head a week before her confinement; she had no other illness and no accident during pregnancy. The labor was normal.

Previous health.—The child seemed perfectly healthy at birth. She has shown no signs of syphilis. She has had slight dyspeptic symptoms from injudicious feeding.

Present illness.—During the first fortnight of life, nothing abnormal was noticed. At the end of that time, she began to cry a great deal. When three or four weeks old, her mother observed that her head “hung back too much;” and at six weeks it was seen to be distinctly enlarging. At twelve weeks the fits began, and they have continued ever since. Recently, they have been diminished in number by the administration of bromide, but there is still at least one every night. The infant is always ravenously hungry and she screams very much, especially during the night, so that the parents have not had their proper sleep for many weeks. In addition to the bromide, she has had iodide of potash and mercurial inunction for a short time.

Present condition.—The child is thin but not much emaciated. Her head has the typical hydrocephalic shape and the superficial veins are much distended. The cranium measures eighteen inches in horizontal circumference, ten-and-three-quarter inches from ear to ear, and eleven inches from glabella to occipital protuberance. All the fontanelles and sutures are widely dilated. On each temple there

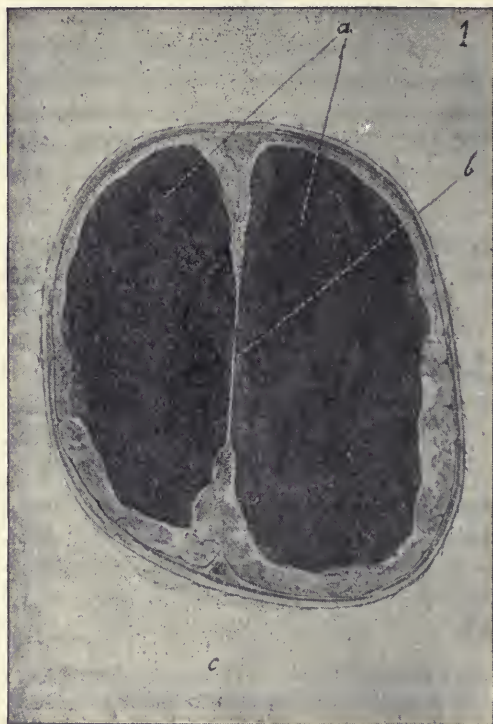


PLATE I.—Lower surface of first slab removed from frozen head (two inches from vertex). (a) Lateral ventricles filled with frozen fluid. (b) Corpus callosum. (c) Longitudinal sinus.

is a little rounded swelling, which on palpation is found to correspond to a triangular membranous aperture in the frontal bone.

There is no optic neuritis or atrophy. The eyesight seems good ; the child recognizes her father and mother,

and appears intelligent. The thoracic and abdominal organs are normal. There is no paralysis nor contracture of any of the limbs.

Treatment.—As the child had already been some time under medical treatment, and the screaming was no better and the fits had not stopped, it was resolved to try the effect of tapping and pressure.

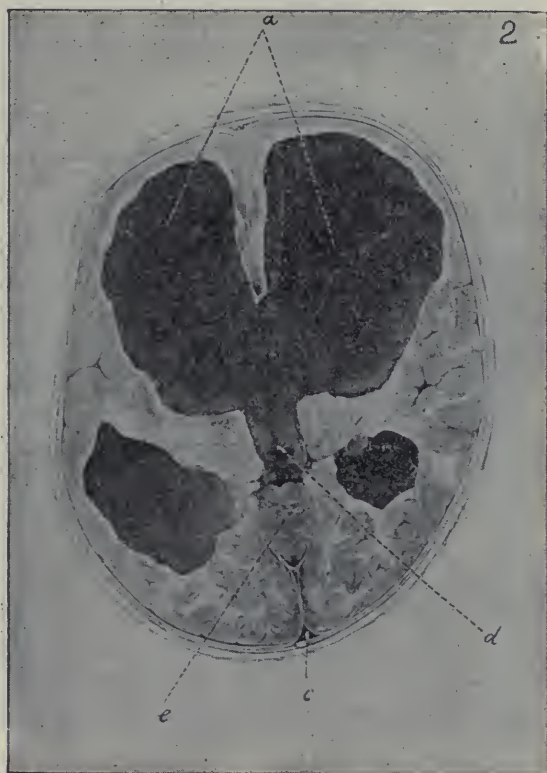


PLATE 2.—Upper surface of portion of brain left after removing three sections (four inches from vertex). (a) Lateral ventricles filled with frozen fluid. (c) Longitudinal sinus. (d) Aqueduct of Sylvius. (e) Central lobe of cerebellum.

A fine trocar and cannula (No. 1) were used, and they were passed into the right corner of the anterior fontanelle an inch and a half from the middle line, about an inch

deep. On removing the trocar, the fluid spurted out and after about an ounce and a half had escaped, the cannula was withdrawn and a piece of plaster put on. A soft elastic bandage was then lightly applied over the whole head. The fluid was perfectly colorless and clear, and contained a good deal of albumen.

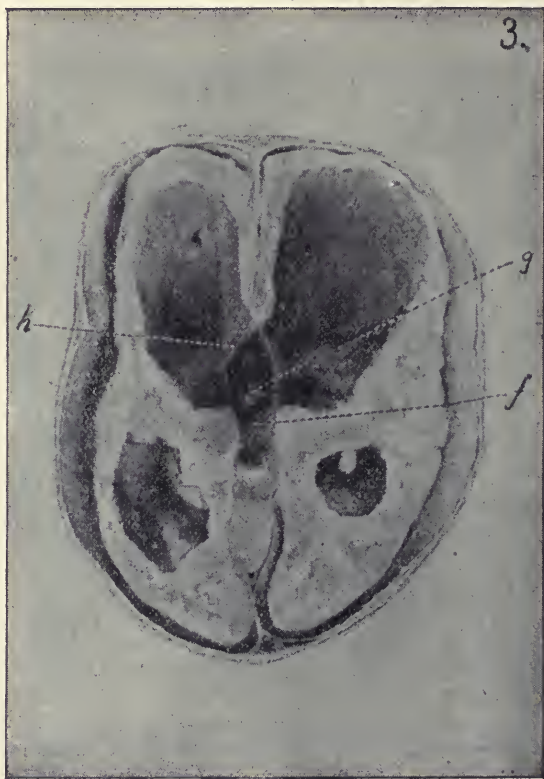


PLATE 3.—Upper surface of portion of brain left after removing three sections (four inches from vertex). [From pencil drawing made after specimen had been some weeks in Müller's fluid and spirit.] (*f*) Third ventricle. (*g*) Infundibulum. (*h*) Section of foramen of Monro.

Progress.—April 11th.—The child has had one fit each night (as before tapping) but they have been less severe. She has slept much better and is less ravenously hungry. Tapped again (2d) one-and-a-half ounces of similar fluid removed from left side of fontanelle; bandaged as before.

April 14th.—No fits since last note. Improving in every way. Tapped (3d) two ounces; and bandaged more tightly.

17th.—Has had a bad fit every night and been restless. This is found to be due to a small slough on each parietal eminence, caused by the pressure of the bandage. Tapped (4th) two ounces; bandaged again with corn-plaster round the sores.

25th.—No fits since last note. The head has been tapped three times, alternately on the right and left sides, about two ounces being removed each time. The fluid remains perfectly clear and there has never been any rise of temperature. Tapped again (8th) two ounces. The head is certainly a little smaller and less tense, so that the fluid does not spurt out as before, but requires a little pressure to make it come. Still bandaged as before.

May 3d.—Bandages and plaster have had to be removed because of ulceration of the scalp. The head is getting larger again. The child has had no more regular fits, but has occasionally what the mother calls "funny turns."

10th.—Sores healing; head much larger. Has had two fits since last note.

19th.—Constantly recurring fits during last nine days (many each day). Head enlarging. Tapped (9th) two ounces; no bandage applied.

21st.—One fit only since tapping.

22d.—Fits and restless. Tapped again (10th) two ounces, and bandaged.

June 3d.—Only one fit since last note. Head tapped twice, two ounces removed each time; bandaged. Tapped again to-day (13th) three ounces; bandaged.

23d.—No fits and sleeping well since last note. Has been tapped three times by S. Walker or myself; four ounces each time. Tapped to-day (17th) four ounces, and bandaged.

July 3d.—Very restless, not sleeping. Tapped to-day (second time since last note and nineteen times altogether); four ounces removed.

7th.—For last two days has been much worse, constantly taking fits, drinking ravenously and crying. Head seems getting larger. Tapped (20th) six ounces; bandaged.

10th.—Constant crying and frequent convulsions. Tapped (21st) six ounces perfectly clear fluid; not bandaged because of pressure-sore.

12th.—No improvement, constant fits and screaming. Tapping abandoned.

28th.—No change in symptoms. Head looks bigger.

Sept. 5th.—No better in any way, but the child has occasional intervals of relief, and during these she laughs when amused and certainly appears to recognize her mother quite well. Measurements of head: horizontal circumference, twenty-one-and-three-quarter inches; from ear to ear, fourteen-and-a-half inches; from glabellum to occipital protuberance, fifteen inches. It was proposed to try tapping again but the parents objected on the ground that it would prolong the child's sufferings.

28th.—Died, after a few days' illness, from severe diarrhoea.

*Post-mortem examination.**—Sept. 29, 1890. Permission was obtained for a thorough examination of the head. The cranium was carefully removed, taken to the laboratory of the Royal College of Physicians, and suspended in a tub surrounded by ice and salt. When frozen thoroughly hard, horizontal sections were made with an ordinary saw.

As these were removed, they were placed on a tray and a tracing of the cut surface was taken by means of gelatine paper. The outline was then transferred to drawing paper and a water-color drawing was made by Mr. J. T. Murray, with the section before him.

The first slab removed was about two inches thick in the centre and Plate 1 is from the drawing of its lower surface.

After three slabs had been removed, some salt found its way into the specimen and this prevented any further cutting with the saw. Plate 2 is from the drawing of the upper surface of the lower part of the cranium before it began to melt. It is about four inches from the vertex. This lower part of the brain was put into Müller's fluid and spirit, and Plate 3 is from a pencil drawing of it taken when the brain-tissue was thoroughly hardened. The upper parts of the brain were also hardened before being further dissected.

The cranium is unsymmetrical, the left side being much larger posteriorly than the right. The cranial bones are

* I have to acknowledge with thanks the assistance rendered to me in doing this by Dr. Gordon Sanders and Dr. Walker.

thin and yielding. The dura mater is very thick and firmly adherent to the bones. The membranes covering the base of the brain—especially about the sella turcica and in the posterior fossa—are very much thickened and matted together by old inflammation. Over the surface of the hemispheres, there are few adhesions or none.

The *lateral ventricles* are enormously distended with clear fluid, which has displaced the surrounding structures to such an extent that they are difficult to recognize. The ependyma is thickened and granular in appearance. The foramen of Monro are enormously dilated, being an inch and a quarter in diameter.

The *third ventricle* is also much dilated. It measures one-and-three-quarter inches in length, and is five-eighths of an inch in transverse diameter. On its floor is seen a rounded elevation, which on dissection appears to be part of the distended infundibulum pushed inwards ; and at this spot the brain-substance is only about one-third of a line in thickness. The aqueduct of Sylvius is dilated so as to admit easily a No. 2 catheter. The *fourth ventricle* is also very large. The thickening of the membranes in the neighborhood of the foramen of Magendie is so great that in all probability that aperture and the others near it must have been obliterated ; but, owing to the hardened structures tearing somewhat irregularly on removal, it was not possible to demonstrate this point.

The grey matter of the hemispheres is thinned and flattened against the bones by the fluid in the ventricles. The basal ganglia are also flattened and displaced. The white matter is extraordinarily thinned, so that in many places its section is less than a line in diameter. A mere thread of white matter in the mesial line is all that can be found to represent the corpus callosum. The fornix cannot be made out.

Remarks.—The hydrocephalus in this case was evidently secondary to basal meningitis. We could not, therefore, have expected recovery as the result of the tapping ; but the performance of the operation and its repetition were, I think, fully justified by its effect on the fits and screaming, and by the temporary relief which it afforded to the feelings of the parents as well as to those of the child.

The fact that the infant was able to recognize her mother, about three weeks before death, and to smile when amused, is certainly an interesting one when considered along with the state of the brain shown in the plates.

The plan of freezing the cranium before making sections of it enables us to see the different parts of the brain in the same relation to the fluid as they occupied during life, and helps us to a better conception of the state of affairs inside the head in chronic internal hydrocephalus than we should probably form from ordinary dissection.

DIETETIC GLYCOSURIA IN ARTIFICIALLY- FED INFANTS, WITH CASES.

BY HENRY KOPLIK, M.D.,

New York.

GLYCOSURIA in infants and children is so rare that the field can as yet be said to be but little explored. The literature of diabetes mellitus shows it is true, isolated instances of the occurrence of diabetes in older children and very few in young infants. The subject of dietetic glycosuria in infancy remains almost unmentioned in literature. About a year ago the author was attracted toward an investigation of the urine of children whose chief article of diet was an artificial baby food. The great percentage of glucose, sometimes reaching 45 parts in 150, in some of these foods, invited an examination of the urine of infants partaking of such foods with high percentages of glucose or substances which in the presence of a ferment were converted into glucose. In the May meeting, 1892, of the pediatric section of the New York Academy of Medicine, the author presented the subject

for the first time to the profession, and at that time submitted several cases showing the presence of glucose in the urine of infants partaking of various kinds of proprietary foods. I refrain from going into minutiae of constitution of baby foods as they exist at present in the market. Every thinking physician is well acquainted through the writings of earnest workers upon the subject of infant feeding with the constitution of these foods. Looking at the whole field he is well able to draw conclusions. In this short communication I will only refer to a dietetic glycosuria which is also transitory, occurring in infants under certain conditions, who partake of these foods. In my dispensary material I find it difficult to rely exclusively upon statements of the guardians of infants as to foods and their administration, so that in selecting cases I have chosen those only in which I saw the food administered, and in which there was a history of prolonged administration of the food. Hence the cases are not so numerous.

My method consisted in catheterizing the infant, drawing off the urine into a clean bottle and taking it to the laboratory for testing. The two tests employed were* Fehling's test for qualitative reaction, and the fermentation test of Salkowski as modified in the instrument sold as the Einhorn tube. In the Fehling test the change of color was sometimes so slight and the precipitate so small that it was necessary to wait twelve to twenty-four hours before the deposit of reduction was well settled. The general character of the urine was noted as far as possible, but no case of high specific gravity is recorded. In some cases it was not always possible to obtain enough urine on account of the tender age of the infant to determine the specific gravity. In Epstein's clinic, an investigation recently published upon glycosuria in breast-

* Squibb's Fehling solution. Here the tartrate and the copper solution are mixed just before using, insuring a fresh solution for each test.

fed children, was conducted by Julius Gröz,* with the aid, of receptacles attached to the children, this with the rotating material of a dispensary was manifestly not feasible.

The color of the urine in some cases was normal, but in isolated cases, notably one case where the sugar was quite high in percentage, the yellow color mentioned by Gröz was seen, and this in specimens examined prior to the appearance of the work from Epstein's clinic, so much so that in one specimen the yellow hue to the urine was a matter so clear to a by-stander as to cause remark.

CASE I.—Female infant, æt. five months, fed upon a proprietary baby food; atrophic, has acid diarrhœa, colic flatulence, no temperature, stools stringy, greenish olive color; urine five c.cm.; too little for specific gravity. Fehling's test sugar; trace also found by fermentation. Placed upon sterilized milk, and two hours after a combined nursing of sterile milk and baby food; no sugar. (The reasons given by the mother for using infant food a second time against injunctions was that the sterile milk supply had become exhausted.)

CASE II.—Female infant, five months old; brought up upon a baby food, oatmeal and barley, has within a week been ailing more than usual; diarrhœa; green stools. Mother says child has been ailing and wasting under the diet of foods. At present the infant is flabby, has colic, no teeth. Urine 1.010, acid. Fehling's test gives distinct orange-yellow precipitate. Fermentation test sugar, also no albumen.

CASE III.—Male infant, æt. eleven months; at the breast, but takes infant Zwieback. Fehling and fermentation test, no sugar.

CASE IV.—Female infant, æt. two months; quite small for its age, but well developed, has taken the breast; but this was insufficient, and it was given a proprietary baby food since birth. The mother has but little in the breast; baby was doing well until a week past when stools began to be thin, flaked with white curds and greenish in hue,

* Jahrbuch für Kinderheilkunde. Bd. xxxiv., Heft 1.

with a penetrating odor, the diarrhœa is constant, no vomiting, some intertrigo. Urine light straw color, only 2 c.c. Sugar by Fehling's test not enough for fermentation.

CASE V.—Male infant, æt. twenty-two months; is nursed with the breast at times, but mostly with condensed milk; child is well nourished; has upper incisors and canine teeth. Urine 1.020, acid; no sugar.

CASE VI.—Male infant, æt. two months; brought up on baby food, a malted food; mother complains the infant is doing badly, is pale and ill-nourished. Infant is puny. Urine contains sugar by Fehling's test.

CASE VII.—Boy, æt. three-and-a-half months; suffers from enteric catarrh and flatulence, has also bronchitis; is taking a well-known baby food exclusively. No sugar in urine by Fehling and fermentation tests.

CASE VIII.—Male infant, æt. ten months; is being fed artificially with a baby food; has been sick for a day with diarrhœa and vomiting; stools are yellow; urine yellow in color, contains quite marked amount of sugar by Fehling's test, qualitative; and by the fermentation test with the Einhorn instrument, the reading reaches the one-quarter of one per cent. mark. After stopping the artificial food and placing the infant upon sterilized milk the symptoms disappeared and the sugar also disappeared from the urine.

CASE IX.—Male, æt. seven-and-a-half months; very small infant for its age; taken a proprietary baby food for the past three months; has been suffering from diarrhœa; four loose movements daily, with colicky pains. Urine, no sugar by fermentation and Fehling test.

CASE X.—Male infant, æt. eleven months; suffering from gastro enteritis, has been taking artificial food since birth. Urine, no sugar by Fehling or fermentation.

During the time of the above studies the urine in a number of healthy breast-fed children was examined, and in no case was sugar found in the urine where the breast was an exclusive diet and the infant had no intestinal or gastric disturbance.

From the above it will be seen that half of the children showed a glycosuria. In two cases where opportunity was given to place the infant upon a different diet, generally sterilized milk, the sugar disappeared from the urine, at the same time the symptoms improved. The cases were, as will be seen by referring to the histories, infants who were not in good or moderately good health. They were all suffering from gastro-intestinal disorders in which rectal discharges of varied nature were combined with symptoms of colic caused by excessive gaseous formation in the cavity of the intestine. The author has not had any children under his eye whose condition was an ideal one from external appearances, and who still were taking an artificial baby food. Such children in his material are rare, and when one did appear the facilities for study of the urine were not such as to invite any one to seize the opportunity for investigation. Yet it will be seen that in not all infants taking an artificial substitute was sugar found. Only in the children who were ingesting large amounts of glucose, as in the malted or artificial milk foods, could sugar be predicted.

The above communication finds additional interest in the light of the investigations of Gröz who worked in Epstein's clinic, and whose work has appeared about the same time that the author made his communication to the Academy of Medicine. Gröz found that in the normal, healthy, breast-fed infant sugar was absent from the urine, and that not only could such infants ingest large amounts of milk sugar without showing the same by reduction test in the urine, but no bad symptoms were produced in such infants by the ingestion of large amounts of milk sugar. As soon as the infant fed upon the breast suffered from any gastro-intestinal disorder, in a certain percentage of cases the ordinary tests showed a reduction in the urine, and this with the normal feeding amounts of the breast milk. The author concluded that the intestinal disorder failed in the assimilation of the

milk sugar which was the substance causing the reduction in the urine.

From our own experience it is also shown that a transitory dietetic glycosuria will make its appearance in those children who ingest large amounts of baby food which is rich in glucose, and this in infants who at the same time are suffering, as did Epstein's cases, from gastric and intestinal symptoms. While Gröz's investigations were conducted upon breast-fed children, the author's were conducted upon children artificially fed, or bottle and breast-fed children. In none of the cases were any symptoms observed which could give us any clue as to the influence of this dietetic glycosuria in producing a permanent condition of diabetes. As is well known, some of these atrophic, badly nourished, artificially fed infants have a ravenous appetite for the food they take. How far the glucose, either in the food or urine, is connected with such conditions must remain subject to future work in this line. The author at present can only conclude that in the cases investigated by him a *transitory* dietetic glycosuria was present.

NOTES ON ACUTE TUBERCULOSIS IN YOUNG CHILDREN, WITH CASES.

BY FREDERIC M. WARNER, M.D.,

Visiting Physician to City Hospital, Blackwell's Island.

ACUTE tuberculosis in the infant differs in a marked manner from the affection in the adult, in that it may make its appearance as an acute febrile disorder with general symptoms only, which attract no attention to any special organ, until a few days before the termination of the disease.

More commonly, however, some group of symptoms indicates promptly the region more especially affected ;

thus we may have a meningitis, or very rarely an acute pulmonary tuberculosis.

Children of all ages are liable to a manifestation of the disease; as a rule, however, the younger the child, the greater the dissemination of tubercles will be found, and conversely, with increasing age, the more likely it is that a concentration of the tubercular forces will take place in a given organ.

The question of causation in reference to the possibility or probability of the inheritance of the disease is of prime importance, and the weight of evidence given by many reliable authorities, shows that infants found to be suffering from tuberculosis within a short time after birth, varying from weeks to months, have inherited the disease—in the majority of cases. Jacobi* cites the case of a fœtus born of a phthisical mother at the end of the seventh month of utero-gestation, in which an examination revealed the presence of tubercles in the liver, its peritoneal covering, the spleen and on the pulmonary pleura.

Undoubtedly, however, many cases where the inference is that the disease is inherited are really the result of infection after birth. Individuals are born receptive to this disease; they come from a debilitated and degenerate parentage, not necessarily tuberculous; their power of resistance is slight, and when they are subjected to bad hygienic surroundings, contaminated air and infected milk, they succumb.

The hereditary tendency to the formation of tubercle is undoubted, it may skip one generation or even two, but ultimately a place is found for the lodgment and growth of bacilli, which may be derived from the mother's milk, from tuberculous cows' milk, from dried sputum floating in the air; and which may also enter the system by inoculation.

Two cases which came under my observation about the same time, show quite clearly it seems to me, the two forms of the disease in infancy—one hereditary and the other acquired.

*Cyclopædia of Diseases of Children, vol. ii., p. 167.

CASE I.—D., female, born in City Hospital, January 6, 1892, seemed healthy, and was nursed by the mother only three weeks and then put on the bottle, as the mother was found to be suffering from phthisis, and finally died April 10th.

The child appeared to thrive until about April 7th or 8th, when she was observed to be apathetic and listless until April 15th, when she had a convulsion and showed considerable cerebral irritation during the night following. The next day (16th) she seemed improved, but during the early part of the night she had three convulsions in rapid succession; at this time the pupils were moderately dilated and responded fairly well. April 17th at 11 A.M., she had a convulsion of the left side of the body; the left side of the face was drawn, while the right was calm; the left arm and leg were strongly contracted, at the same time the eyes turned far to the right; the head also being drawn to the right side.

From this time she suffered from constipation and a diminution in the secretion of urine, which was frequently examined and at no time contained albumen. She now became very quiet, and during the afternoon of the 19th voided urine in proper quantity. Toward evening she again became irritable and developed marked Cheyne-Stokes respiration. She became very weak and refused nourishment, and had moments of rigidity. The 20th at 7.30 A.M., she had a very severe convulsion which yielded finally to an enema of chloral, but her breathing continued very bad, and she became comatose and died at 3 P.M.

Autopsy:

Lungs.—Markedly emphysematous, both upper lobes congested.

Heart.—Normal.

Liver.—Riddled throughout with tuberculous areas, here and there were large nodules.

Spleen.—Same condition as existed in liver.

Kidneys.—Seemed normal, capsule not adherent.

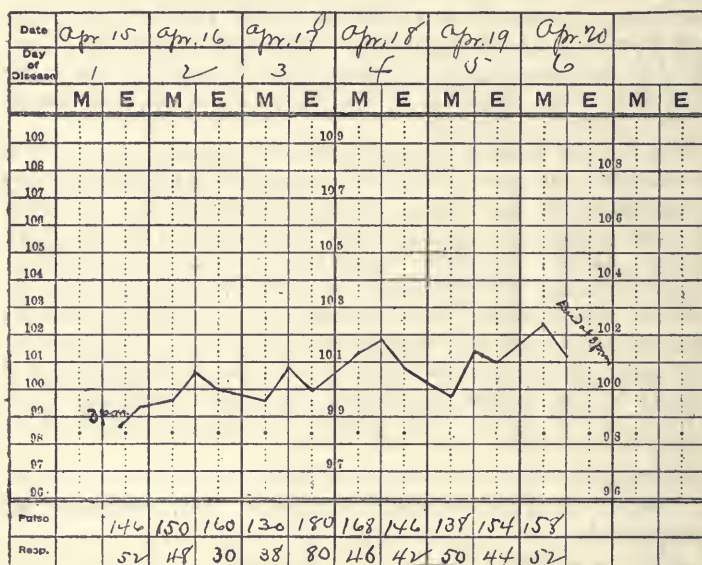
Intestines.—Free and clear, normal.

Brain.—Very soft, superficial veins congested, lateral ventricles dilated and filled with serum; pia mater was opaque and granular.

The accompanying chart shows the course of the temperature, pulse and respiration.

CASE II.—J. C., male, born October 8, 1891, at full term; seemingly healthy, father and mother both well, strong, laboring people. Father's father died of asthma at forty-two years of age, and father's mother of phthisis at seventy-three years. Mother's father died of pleurisy at seventy-three years, and mother's mother still living. The baby's father was taken sick on Dec. 2, 1891, with influenza, which was followed by acute phthisis, dying on March 16, 1892.

The family occupied three small rooms, all sleeping in one bed together, and with the ignorance of people of their class, kept the windows shut, and only allowed the



place to be aired by opening the door into the main hall of the tenement house, as the weather was cold.

About the middle of January the child developed a slight cough; up to this time it had been apparently well, big and strong, but was constantly fondled and kissed by the father as he lay confined to bed. The baby began to lose flesh and strength rapidly, the cough became more troublesome, and I was asked to see it. I found it very much wasted, with marked glandular swellings, more or less continuous fever, a persistent and at times paroxysmal cough. Large and small moist râles were pretty general, with here and there small areas of dulness. The diges-

tion became much impaired, and a slight diarrhœa set in and the child died February 28, 1892.

An autopsy was not allowed.

I was not able to obtain any family history of Case I. The fact that the mother was suffering from phthisis at the time of the birth of the child would seem to prove that the disease was inherited; on the other hand, the mother was allowed to nurse the child for three weeks, which was sufficient of itself to infect the little one. So in this case, while the probability is that the tubercular taint was directly transmitted from the mother to the child in utero, yet it is a great pity that the child was ever allowed to go to the mother's breast, as the doubt will remain, especially in the minds of those who deny the possibility of transmission of the disease to offspring.

Case II. is interesting, showing the tubercular tendency in the family through three generations; the soil was favorable to the growth and development of the tubercle-bacilli, the infant undoubtedly being infected by means of the father's sputum dried and floating in the air, or by inhaling his bacilli-laden breath.

Treatment.—The fact that tuberculosis in infancy may be inherited or acquired, emphasizes the value of prophylaxis or preventive treatment. The problem presented is, what are we to do with a child with the family history of Case II.?

Such an infant should never sleep in the room of either parent, it should be nursed by a strong, healthy wet-nurse; never by the mother; it should be kept out of doors, except in damp or very cold weather; its room should be large and airy, heated by an open fireplace; every catarrhal inflammation, however slight, should be treated at once; if the mucous surfaces of the body are kept in a healthy condition, the bacillus will not find easy entrance. The extirpation of tubercular glands has been somewhat extensively advised and practiced, it seems to me without any special benefit, the difficulty lies in the fact that too many glands, as a rule, require this treatment to make the operation practicable.

When possible, climate should be taken into consideration; for these children, a dry atmosphere though cold, is at all times to be preferred to one moist or damp and warm; thus high altitudes away from great bodies of water will ever be the most healthy.

When the child is weaned its milk should be sterilized, and in time its other food well cooked, to prevent the possibility of entrance of bacilli into the alimentary tract.

The patient should be taught the value of personal hygiene, systematic exercise should be indulged in. Where the means of the parents of such a child be ample, a tutor should be employed at home, obviating thereby the danger to the patient from breathing for many hours each day the vitiated air of a school-room.

The food should be abundant and nutritious, containing a large amount of carbohydrates, and, as I have before said, should be sterilized.

The only drug that I have any faith in as an anti-bacillary agent is creasote, to be given in small doses, a fraction of a minim in the beginning, to be increased cautiously, watching the effect on the stomach and kidneys.

When the disease declares itself in any one of its forms, the treatment must be symptomatic, and the result is rapidly fatal.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Sinclair, A. M., (Burnley): Restoration from Syncope under Chloroform. (*Brit. Med. Journ.*, 1892, July 9, '76.)

He reports three cases, the first a poorly-nourished female child, æt. eighteen months, with a tumor over the right shoulder; the second, a lad, æt. thirteen, with a perforating wound of the cornea, and the last, an adult with a wound near the elbow and quite blanched from the loss of blood. In all three cases, the pulse and respiration stopped during the administration of the chloroform; but

they all recovered under intermittent compression of the præcordium with artificial respiration.

It was found that one hand was not sufficient to compress with, but that between both hands the præcordium can be very effectually compressed. The chest wall yields to a considerable extent even in the adult. My opinion is that artificial respiration would not have brought these cases round. As to the use of drugs, there is no respiration, there is no circulation, there is no muscular contraction; how and when are they going to act? The heart has stopped and it must be set agoing. To bring about this it must be acted upon directly, and this can be done by intermittent compression of the præcordium.

Harvey, Philip Francis, (Fort Keogh, Montana): Diphtheria from Faulty Drainage. (*Lancet*, 1892, i., 1184.)

The first case was an officer who had not been exposed to any known source of contagion. The case proved to be very malignant, and terminated fatally by heart paralysis after about eight days progress. One week later the patient's wife developed a fatal attack. The disease originated *de novo* at an isolated military post in a new brick building. The location of the post was high and dry on a plateau between the confluence of the Mississippi and Minnesota rivers.

A thorough sanitary inspection of the house was made, and a faulty drain was found in the basement, with some leakage of sewage into the earth at that point. Here, then, was the explanation of the origin of the disease, and a demonstration how rapidly the diphtheritic poison may be formed under circumstances favoring its evolution, as the cases occurred in January and the premises were first occupied the preceding November.

Carpenter and Pedley: Primary Dentition in Its Relation to Rickets. (*Lancet*, 1892, i., 1077.)

There is a widespread belief among medical men that the temporary teeth are materially affected in children who are rickety, and as a result of this disorder. If it be early there are three ways in which the modifications may occur. 1. The teeth are late in their eruption. 2. The teeth are cut cross, that is, they appear in wrong order. 3. They soon become carious and are often shed in wrong order. In our practice the correctness of these views, in their entirety, has for some time been held in doubt, and with the object of bringing them to the test we have made careful and extended observations on this subject. For

this purpose we have examined the mouths of some five hundred children with obvious rickets, and find the results are not confirmatory of the prevalent ideas on this subject. Briefly tabulated these results are as follows: *a.* In the vast majority of patients the teeth are perfect in structure. There is no deficiency of enamel. The teeth do not become loose and rapidly fall out. There is no special proneness to decay. *b.* In those rare cases where the teeth have been found defective, a history of inherited syphilis has been obtained. *c.* Dentition is undoubtedly delayed.

Jessop, Edward, (Hampstead, N. W.): The Incubation Period of Mumps. (*Brit. Med. Journ.*, 1892, i., 1192.)

My first patient was brought into contact (not very close) with a person who had recovered from the complaint and who was declared to be free from the infection eighteen days after its development. The date of his first contact with this person was March 17th; he remained in particularly good health until April 19th, when the first signs of pain and swelling of the parotid showed themselves.

On the evening of April 19th his two sisters kissed him, but did not again see him. On May 10th, or twenty-one days afterwards, they developed mumps. These cases show clearly that the incubative period of mumps can be as long as three weeks; that the patient may remain in apparently perfect health during this incubative period; that a person can transmit the disease at any rate for about three weeks after he first develops it; that the contact need be only slight in order to convey the poison.

Jarre, V., (Paris, France): Congenital Absence of Teeth in a Subject Twelve Years Old. (*Dental Cosmos*, 1892, xxxiv., 468.)

As a result of our researches, we think we may be able to conclude as follows:

1. That to our knowledge there exists no real authentic case of congenital absence of teeth in man.
2. That the case of the patient described, who has never had any teeth in his inferior maxilla, and has had only a total of eight, including both temporary and permanent sets of the superior maxilla, of which five were temporary and three permanent, which latter replaced the three temporary teeth which were shed, is an exceptional one.
3. That this example of the reduction of the dental system coincides with a lack of development in the hairy

system, and is in accordance with the law of correlation of Darwin.

4. That this arrest of development having not only shown themselves in the dental and hairy systems, but also on other dermo-epidermic products of the same origin, denotes a fault of nutrition having deeply involved the derivatives of the external blastodermic layer, known as phaneres or products.

Triboulet: The Experimental Production of a Disease with Choreiform Movements in a Dog. (*Mal. de l'Enf.*, 1892, x., 219.)

The author was able to isolate from the blood of a dog affected with what is known as chorea of the dog, a coccus which produced an affection characterized by choreiform movements when injected subcutaneously into another healthy dog.

II.—MEDICINE.

Carter, A. H.: Paroxysmal Tetanic Spasm in Chronic Hydrocephalus. (*Brit. Med. Journ.*, 1892, i, 1140.)

When seven months old, the patient, a girl, had frequent convulsions with retraction of the head. Ill for thirteen weeks. Was then fairly well until eight years of age, when she had a severe headache, followed by insensibility which lasted twelve hours. Rapidly got better and went to school. Three months ago the headache (generally occipital) returned, with frequent vomiting at first. In spite of this she was not ill enough to give up attendance at school for two months. At this time she became subject to paroxysmal convulsive attacks, in which the head was retracted and the whole body bent backwards, and accompanied with severe pains in the back of the head. The attacks lasted from one to three hours, and recurred daily; they continued up to the time of her death. From this time she had been unable to walk or even stand, owing to persistent tendency to fall backwards. She died April 18, 1892, aged twelve years. There was marked double optic neuritis. Cerebellar tumor in the median lobe was diagnosed, but post-mortem nothing was discovered beyond evidence of chronic meningitis about the neighborhood of the medulla oblongata, with firm adhesions of the latter to adjacent parts, and hydrocephalic distention of all the ventricles.

Watkins-Pitchford, Wilfred: A Case of Rapidly Fatal Diabetes Mellitus in a Boy Aged Ten. (*Brit. Med. Journ.*, 1892, i., 1136.)

The patient when first seen (April 23d) was nine years and nine months of age. For a fortnight the child had been complaining of dryness of the throat and mouth, of being very thirsty, troubled with cough, and of passing more water than natural. He was also, though eating heartily, growing thin. He was a thin boy with flushed, anxious-looking face and widely dilated pupils. The skin everywhere felt dry and harsh. The urine, of a pale greenish tinge, was of acid reaction, specific reaction 1.035, and free from albumen, but gave immediate evidence of abundance of sugar with the liquor potassæ and sulphate of copper test.

He was put on diabetic diet and given five minims of liquor morphinæ hydrochloratis every three hours. The next day he passed six quarts, and the next day five quarts of urine, passing it with great regularity every hour of the day and night. The pulse became weak, and during the day two or three loose offensive stools were passed. In the next twenty-four hours, the respirations from being normal in character, almost suddenly doubled in frequency. He coughed occasionally but without expectoration. Physical examination of the chest was negative. He vomited once or twice at intervals of a few hours. At seven P.M. the respirations were 48, pulse (hardly perceptible) 96, the temperature so far subnormal that the index of the thermometer remained quite stationary when shaken down to the lowest point. The patient was moribund; he ceased to ask for drink, and it was with great difficulty that nourishment could be administered. On the following day the patient died, twenty-one days after the earliest appearance of any symptoms. Six days before death the boy was playing about with his fellows.

In the twenty hours preceding death, sixteen ounces of urine were passed; its specific gravity was 1.040; it had a strongly acid reaction, contained an abundance of sugar, and one-sixth albumen; no casts could be detected. Although he had not strength enough to speak, the patient retained consciousness to the end. The emaciation which steadily progressed throughout the illness, became extreme towards the end.

Fox and Ball, (London): On Hypertrophy of the Spleen in Infants. (*Brit. Med. Journ.*, 1892 i., 854.)

In sixty-three cases of splenic enlargement in infants, we could not positively exclude the presence of rickets in a single one, and in almost all the rickets was clear and distinct. In forty-one per cent. of the sixty-three cases inherited syphilis was undoubted, and in the remainder syphilis could neither be positively affirmed nor excluded. Of 155 cases of inherited syphilis the spleen was found by palpation to be enlarged at some period in 48.4 per cent., and it is universally accepted that enlargement of the spleen is of excessive frequency in inherited syphilis—at any rate in the earliest stages,—and we assert that it may persist to later stages also. This enlargement is often apparently indistinguishable histologically from that met with in cases of rickets. Our observations confirm the opinion of Kassowitz and Fournier that rickets occurs with an incontestable degree of frequency in subjects attacked with inherited syphilis. In rickets the spleen is found enlarged in perhaps twenty-five per cent. of the cases. Bone changes constitute only one of the symptoms of rickets, and are not the earliest, so that, allowing for the frequency of enlarged spleens in early syphilis, the bulk of our cases may quite possibly be due to rickets, either primarily or engrafted upon syphilis. We think, however, that we are justified in saying that in every case of an enlarged spleen in an infant, such as we have been discussing, there is reasonable ground for suspecting syphilis. We are not aware of any observations on the viscera and lymphatic glands in cases of rickets in animals, but such an inquiry seems to be very desirable as an aid to the solution of the vexed question under discussion. Since this paper was written, Mr. Bland Sutton informs us that the spleen and liver are often, though not constantly, enlarged in rickety monkeys, especially in the very young ones.

Jollye, F. W., (Alresford): Hepatic Cirrhosis Occurring in Two Children of the Same Family. (*Brit. Med. Journ.*, 1892, i., 858.)

The following conclusions were drawn from the analysis of these and other cases:

1. That alcohol, syphilis, tuberculosis and malaria, account for fifty per cent. of them, the other most frequent causes being probably the exanthemata and errors in diet.

2. That acute interstitial hepatitis is frequently found microscopically after the infectious fevers, especially after measles and scarlet fever, but the part played by the

disease, alcohol and diet respectively in those cases which afterwards become examples of cirrhosis, is an open question, as is also the reason why some livers are affected with the hypertrophic and others with the simple form.

3. That the symptoms may be wholly referable to the nervous system, the relation between the pathological changes in the liver to those in the brain being undetermined.

4. That severe pyrexia, quick pulse and increased frequency of the respirations, are frequent symptoms, and may make the diagnosis difficult from tuberculosis, typhoid and other fevers.

5. That the symptoms of failing health in children, with no marked adequate cause, especially if associated with epistaxis or other hæmorrhages, the development of nævoid growths, or the occasional presence of jaundice, should lead us to examine the liver for signs of cirrhosis.

6. That the later symptoms depend upon the canal system of the liver chiefly involved, or whether the parenchyma chiefly suffers.

7. That nearly half the cases occur between the seventh and thirteenth years, and that males are nearly twice as frequently attacked as females.

8. That if all severe symptoms disappear under treatment, they will certainly reappear and end fatally within, at the outside, as far as we know at present, a period of three years.

9. That the best treatment appears to be a tonic one, combined with special treatment for special symptoms.

10. That some cases are part of a general disease due to some poison getting admission to the general circulation and especially attacking the liver, owing to the slow circulation in the hepatic capillaries, just as, no doubt, acute yellow atrophy is a general disease, the chief pathological change found post-mortem having caused it to be classified amongst the diseases of the liver.

Sturges, Octavius, (London): Some Special Features in the Heart Affections of Childhood. (*Lancet*, 1892, i., 621.)

The points which have been discussed and illustrated may be thus stated: 1. Heart disease in childhood, whether functional or organic, is apt to be overlooked and misunderstood. Overlooked, because its early signs are often only discoverable by careful physical examination, and misunderstood because such divergence from the normal as in the adult usually implies structure change

is in the child often due to temporary disturbance. 2. Owing to the equivocal symptoms of acute rheumatism in children and the indistinct and intermittent character of pericardial rub at that age, the occurrence of pericarditis often escapes notice. 3. The earliest physical signs proper to endocarditis cannot be defined. The heart's sounds and action are invariably modified in acute rheumatism, and while pericarditis almost implies endocarditis, irregular rhythm, systolic apex murmur, doubling of second sound, slight presystolic murmur, will all in their several degrees suggest it; but indubitable signs of material heart change are gradually developed as the result, and not by the mere presence of endocarditis. 4. The clinical history and the morbid anatomy of chorea warrant the belief that mitral systolic murmur, increasing until it becomes slightly blowing, and then decreasing until it disappears, may be due to a form of mitral endocarditis common in chorea, less common in rheumatism, that is recovered from without heart deformity. 5. Mitral stenosis, the common sequel of rheumatic endocarditis, is not at once disabling. The well-being of a child having this defect depends largely on his immunity from subsequent rheumatic attacks, however slight; and what chiefly abridges the period of health he will enjoy is the occurrence of adherent pericardium either in the first or some later attack.

III.—SURGERY.

Schoolfield, C. B., (Dayton, Ky.): A Report of a Series of Tracheotomies and Intubations. (*Lancet-Clinic*, 1892, xxviii, 497.)

Seven cases of tracheotomy are reported, two of which recovered; and three cases of intubation, all of which recovered. In the discussion which followed Dr. W. E. Shaw reported nineteen recoveries out of fifty-seven cases of intubation.

Powell, C. A., (St. Louis): Two Tracheotomies on the Same Patient. (*St. Louis Med. and Surg. Journ.*, 1892, lxii., 208.)

The patient was a boy, four years of age. The first tracheotomy was done by Dr. Mudd for laryngeal diphtheria with moderate dyspnoea. At the end of the third week the tube was removed and the child made apparently

a good recovery. However, two weeks later the obstruction returned and was greater than in the first instance. An incision was made at the site of the first operation and a tube put in the trachea. This tube, which gave complete relief, was removed on the tenth day, and there has been no recurrence of the dyspnœa. Large quantities of membrane were thrown off through the tube for a number of days after each operation.

West, Samuel: Case of Impaction of the Gill Plate of a Herring in the Larynx of an Infant; Tracheotomy; Removal of Bone; Difficulty in Removal of Tube from Functional Paralysis of Abductors. (*Lancet*. 1892, i., 798.)

The patient was a female infant, æt. nine months. This case is interesting in two particulars: first, on account of the period of latency; second, because of the difficulty in the subsequent removal of the tube. The impaction of the bone in the larynx was marked by an initial attack of dyspnœa of great severity. The dyspnœa quickly subsided, and for four days continued so slight that no serious importance was attached to it. At the end of that time, however, it returned and rapidly became urgent. The explanation is clear. The initial attack was due to the spasm set up, and the subsequent dyspnœa to the consecutive inflammation. The first was transitory and the second permanent. The difficulty in removing the tube was without doubt due to the closure of the glottis as the result of paralysis of the abductors, for the child could cry audibly though it could not inspire. The abductor paralysis was, Dr. West thought, the result of disuse, and it was not until they had been aroused to action again by the means used to dilate the glottis that they began to functionate. The tracheotomy was done on August 2d, the bone was removed on the sixth, but the tube could not be dispensed with until September 7th.

Clegg, W. T., (Liverpool): Attempted Lithotritry in a Boy; Suprapubic Lithotomy. (*Lancet*, 1892, i., 687.)

The patient was a boy, aged ten. When seven weeks old he had retention of urine, which required catheterization, and has had urinary trouble more or less ever since. Even after freely incising the meatus, a No. 10 Weiss completely-fenestrated lithotrite would not pass. A No. 6 was then passed and a large calculus discovered. The boy was placed thoroughly under the influence of chloroform and a No. 8 Weiss was passed. It was only with the greatest difficulty that the stone could be seized, but upon

screwing on with full force, it escaped with a jolt. Three times this occurred. Therefore lithotrity was reluctantly given up and the stone was removed by the suprapubic method. The stone was two inches long and one and an eighth inches broad, and weighed 370 grains. The patient made a rapid recovery.

Coates: Laparotomy for Intestinal Obstruction. (*Brit. Med. Journ.*, 1892, i., 864.)

The patient was a girl, æt. fourteen-and-a-half years, who had suffered more or less for two months with abdominal pain and constipation. Her abdomen was distended and tender, and on the right side a doughy swelling was felt. The case was first regarded as simply one of impaction of the fæces in the cæcum. The patient gradually became worse, the bowels ceased to act, no flatus was passed, the abdominal pains increased and the abdomen became more distended. The abdomen was opened in the median line and a band was found constricting the bowel about the middle of the ileum. This was ligatured in two places and divided, and the wound was closed and dressed with iodoform-gauze and wood-wool. The patient made an uninterrupted recovery.

Tubby, A. H.: Pott's Disease. (*Brit. Med. Journ.*, 1892, i., 862.)

He read before the Hunterian Society a paper on "The Treatment of Compression Paraplegia following Pott's Disease." He compared the results of (1) laminectomy, and (2) prolonged rest with extension, and summed up in favor of the latter method, reserving laminectomy for spinal cases.

Martin, J. W., (Leith): Case of Balanitis in a Child Aged Three Years. (*Lancet*, London, 1892, i., 1079.)

On Tuesday, March 8th, the boy, æt. three years and a quarter, was pained and "swelled." The next day he had difficulty in passing urine. He was restless at night, complained of thirst and had no appetite. His head and face were swollen. A quantity of thick milk-white matter came away from the penis, and he could make water; after this the symptoms began to lessen. On examining the penis, the thick whitish discharge oozed out from the point of the penis, the glans was swollen and the skin over it reddened. The prepuce was seen to be red and inflamed. On inquiry it was ascertained that a relative, who suffers from a discharge owing to chronic cystitis, had

been in the habit of nursing the child when he came in, and being dressed as children of such years generally are, the child's penis must have come in contact with some of the discharge, and the infection have been set up in this way. There was no other reason to account for it. Any dirty discharge will set up a similar inflammation in a young subject, not to mention gonorrhœa. With local and general treatment the balanitis soon got better, the only complication being an attack of vomiting and purging one night.

Clutton: Gastrostomy in a Child; Restoration. (*Brit. Med. Journ.*, 1892, i., 1194.)

The case was a girl, æt. four, who, seven weeks before admission, had swallowed some caustic soda. At the time of her admission she was unable to swallow anything at all, and a bougie was arrested at six inches from the teeth. For a month she was fed entirely by nutrient enemata and no bougies were passed, so as to give absolute rest to the œsophagus. Although she materially improved in general condition, no instrument could be passed through the stricture at the end of this time (September, 1889). On September 13th, the œsophagus was opened in the neck with the hope of being able to reach the stricture. The obstruction was found, however, to be within the thorax. After these wounds were closed by suturing, the first stage of gastrostomy was carried out by means of hare-lip pins. Five days afterwards, the stomach was opened and the child fed through the gastric fistula. On January 27, 1890, a very small whale-bone bougie was at last passed through the œsophageal stricture, and after many months of varying success, a No. 14 œsophageal bougie was eventually passed with ease. During 1891, this large bougie was passed about once a month and the plug removed from the gastric opening. Attempts to close this opening were subsequently made by passing the actual cautery along the sinus, and it was now (May, 1892) absolutely closed. She was now in perfect health and came to the hospital once in six weeks to have the bougie passed. No contraction could be felt. The points of interest were: 1st, the age of the patient, and 2d, that after gastrostomy, the œsophageal stricture was eventually dilated and the passage restored to its natural function.

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ANÆMIA OF TUBERCULOSIS.*

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THE following case, with which I introduced my subject, is rather old to appear in pediatric literature. But it was the study of this case which led me to make the investigation of which this paper is a preliminary report, and it is therefore proper that it should serve as an introduction to a subject of vast importance to pediatricists, viz., the anæmia of tuberculosis.

CASE.†—November 4th, 1891.—Miss A., æt. twenty, came to my office for treatment. All of her family except her father had died of pulmonary tuberculosis. Her mother, her stepmother, two grown brothers and one grown sister died of this disease. Three of these deaths were within the last five years, and she was at home during the sickness of all of them. Her father and herself alone survive, and the father is at present confined

* Read before the American Pediatric Society, Boston, May 3, 1892.

† This case was one of two which I reported in the *N. Y. Medical Journal*, May, 1892. It is here reported in greater detail and for another purpose.

to his room with pulmonary tuberculosis and she nurses and cares for him.

A worse family history, with more constant exposure to the tubercular contagion is rarely seen.

Personal history.—She has always enjoyed fairly good health; she remembers that about two years ago, just following the death of her last brother, she was not quite well for a short time and had some “kernels” in her neck; she took some medicine and they disappeared and she has been quite well until within the last three months. During this time she has had more or less dyspnœa and pain in side on exercising, but she thought nothing of these symptoms and continued looking after the sick father and doing the work about the house; at the present time these symptoms have increased to such an extent that she can scarcely “keep up.”

She comes to-day complaining of great weakness, a tired feeling; considerable dyspnœa, some pain in left side, little appetite, sick stomach and great nervousness. There is no fever and no cough.

The menstrual flow during the last few months has been very slight and almost colorless. Last month she had “no show” at all.

Physical examination.—No perceptible disease of the lungs, the heart sounds normal, *lymphatic glands not noticeably enlarged*; the most pronounced and striking symptom is the extreme anæmia, as manifested in the general pallor of the skin and loss of color in the mucous membrane.

Examination of blood.—Only twenty-five per cent. of hæmaglobin and 1,680,000 red corpuscles to the cubic millimetre.

Treatment.—Three grains of reduced iron and one-fortieth grain arsenious acid three times a day.

November 18th.—Hæmaglobin thirty per cent. She thinks she is a little better; changed treatment to saccharated carbonate of iron, ten grains three times a day.

November 29th.—Hæmaglobin forty per cent. Is much better; can do her housework without much fatigue, but she is still very pale and has some dyspnœa on exercise. On the 23d she had “some show” at her menstrual time lasting a few hours.

December 1st.—Hæmaglobin fifty-two per cent. Improving in every way; eats and sleeps well; nervousness and shortness of breath are rapidly disappearing. She is getting

tired of the medicine. Changed treatment to Warner's compound chalybeate pills, two after each meal.

December 10th.—Hæmaglobin sixty-five per cent. She says she is well and that it is not necessary for her to continue taking medicine. She was persuaded to continue treatment from this time on, because she could see for herself in the hæmaglobinometer that her blood had much less color than it ought to have, and as she had noted with me from time to time the gradual increase in the color of her blood, she was the more easily induced to continue the treatment.

December 17th.—Hæmaglobin seventy per cent.

December 29th.—Hæmaglobin seventy-eight per cent. Changed treatment to three grains reduced iron, one-twentieth grain arsenious acid, three times a day.

January 18th.—Hæmaglobin ninety per cent. Last monthly time was normal.

February 1st.—Hæmaglobin ninety per cent. Stopped all medicine after nearly three months of continuous treatment.

February 17th.—Hæmaglobin ninety per cent. Corpuscles, 4,000,000 to the cubic mm. She is "perfectly well;" she "put in" a load of coal during the past week without getting tired.

March 10th.—Girl remains well. She is kept closely at home nursing her father, who is confined to bed with consumption.

March 18th.—She has not been taking medicine for about seven weeks; she says she is well. Examined her blood and was surprised to find only sixty-five per cent. of hæmaglobin and 3,200,000 red corpuscles to the cubic mm. She went two weeks over her last monthly time and it was very scanty. She protests that she is not at all sick, but I again prevailed on her to take medicine so as to keep her blood state up as near the normal as possible during the time she was nursing her father. I again gave her iron and arsenious acid.

March 30th.—Hæmaglobin ninety per cent. Feels well; discontinued medicine and ordered to report in two weeks.

In this case I would call special attention to—1st, the very bad tubercular history; 2d, the constant exposure to contagion; 3d, the "kernels" in her neck two years ago; 4th, no evidence of pulmonary or glandular tuberculosis at the present time; 5th, the state of the blood

(twenty-five per cent. of hæmaglobin); 6th, the improvement of the blood state after treatment (ninety per cent. of hæmaglobin); 7th, the rapid diminution in hæmaglobin after treatment was discontinued (to sixty-five per cent. in seven weeks); 8th, absence of symptoms when blood contained sixty-five per cent. or more of hæmaglobin; 9th, the remarkable fact that this girl has escaped pulmonary tuberculosis for so long a time.

The relationship of anæmia to tuberculosis in this case is by no means clear, and it was for the purpose of inquiring into this relationship and answering certain other questions suggested by this case that the investigation, of which I here present a preliminary report, was begun.

The table below comprehends 166 blood examinations; 164 of these were convent girls; Nos. 1 and 2 were private cases. The great majority of the girls examined were between the ages of twelve and eighteen. The convent girls were examined at the Convent of Good Shepherd in Cincinnati, Ohio, and Newport, Ky. All except thirty-six of these girls belong to the reform class; this class is made up of young girls who have gone astray and are placed in the convent for reformation. The girls of this class, therefore, do not enter the convent until they are from ten to fifteen years of age. The lives of most of these girls prior to the entering of the convent is one of wretchedness; many of them no doubt lived in badly ventilated apartments surrounded by sickness, poverty and crime. These facts are of much importance in studying the physical condition of these girls. The thirty-six referred to as not belonging to the reform class are in the "preservation class;" this class is made up of homeless girls who have been taken when quite young, some of them entering the convent at the age of three, four and five years. Most of the girls in this class have, therefore, grown up in the convent, and have had good food and proper hygienic surroundings. In the table these girls are marked with a star (*).

The following information is embraced in this table: The name, age, length of time in convent, family history

of tuberculosis, exposure to the tubercular contagion, age at first menstruation, regularity or irregularity of the menstrual function, percentage of hæmaglobin, number of corpuscles in some of the cases, and points in the personal history in each case.

The following table was arranged by Dr. Robert Carothers, who assisted me in this work.

The 166 cases recorded below were taken just as they came in the two convents; they were not selected cases. All of them considered themselves fairly well and worked every day, and none of them were under treatment at the time examined.

On close examination a few of these girls were found to have a cough, pain in the side and dyspnœa on exercise; but these symptoms were not complained of and they would not have told them unless closely questioned.

As one would expect, the family history of many of these girls is absolutely negative, but by careful inquiry and with the kind assistance of the Sisters of the Good Shepherd, I obtained a fairly good family history of many of them.

In fifty-eight cases the family history was negative; in thirty the family history was good, no tuberculosis, and in seventy-eight there was a family history of tuberculosis.

In the seventy-eight cases with tuberculous family histories the average amount of hæmaglobin was $78\frac{3}{4}$ per cent. In the fifty-eight cases with negative family histories the average amount of hæmaglobin was $85\frac{1}{2}$ per cent. In the thirty cases with non-tubercular histories the average amount of hæmaglobin was eighty-eight per cent.

These figures, so far as they go, indicate that family tuberculosis predisposes to anæmia, but they are subject to this criticism, that there may have been sufficient active tuberculosis in Class I (with tubercular histories) to account for the ten per cent. diminution of hæmaglobin in the class. These figures are alone, therefore, of little value in solving the problem of the relationship of the

Name.	Age.	In house. Years.	Tubercular History.	Exposure to contagion.	First Menstruation.	Menstrual Function.	Per Cent. Hb.	No. Corp. per Cm.	Personal History.
1 A. L.	20		All family	Yes		Irregular	25	1,680,000	Kernels in neck 2 yrs. ago.
2 S. P.	20		Mother and aunts	"		"	30	2,250,000	Kernels in neck 2 yrs. ago, dysp., pain in side
3 R. K.	19	4	2 Bros. and 2 sisters	"	14	Missed 4 mos.	50	2,650,000	Dysp., pain in side
4 M. S.	18	12	Negative	Neg.	15	Scanty, little col.	60	2,800,000	"
5 E. M.	15	$\frac{1}{2}$	Fath., moth., 3 bros.	Yes	Never	Never	50	2,375,000	Dysp., pain in side
6 M. R.	14	$\frac{3}{4}$	Father and mother	"	13	Once in 6-7 mos.	55		"
7 A. W.	17	$\frac{1}{4}$	Half-bro. and uncle	"	14	Regular	45		Scrofulosis, pain in side, dysp.
8 A. B.	16	$\frac{1}{6}$	Mother and brother	"	14	Irregular	45		Scrofulosis, pain in side, dysp.
9 L. K.	17	$\frac{1}{2}$	Sister	Neg.	14	{ Metrorrhagia Menorrhagia	35		Scrofulosis
10 A. K.	14	2	Mother	No	Never	Never	60		Small and pale
11 S. F.	15	3	Mother and sister	Yes	13	Irregular	65	2,533,000	
12 E. K.	18	$\frac{1}{2}$	2 Brothers	"	15	"	60		
13 M. W.	16	$\frac{1}{3}$	Mother and sister	"	13	"	65	2,543,000	Dyspnoea
14 R. K.	23	$\frac{1}{6}$	2 Brothers	No	14	"	63	4,500,000	"
15 B. G.	18	1	Mother	Yes	15	Slight and pale	60		Had kernels in neck 2 yrs. ago, pain in side, dysp.
16 M. H.*	17	2	"	No	16	Irregular	65		Dysp., pain in side
17 M. S.*	14	8	Negative	Neg.	13	Regular	63		Scrofulosis
18 C. L.	16	16	"	"	Neg.	Negative	65		Small and delicate
19 I. R.	14	2	Mother	Yes	14		65		Dysp., pain in side
20 M. M.*	14	3	"	"	Never		65		Diarrhoea 2 yrs.

21 M. M.*	10	1	Sister	Yes	10	Slightly once			Dyspnœa
22 A. M.	28	10	Negative	Neg.	18	Irregular			Slight cough
23 C. F.	17	2	Good	No	15	"			Cough and dysp.
24 A. L.	16	$\frac{1}{2}$	Negative	Neg.	19	Negative			Scrofulosis
25 A. N.	31	10	"	Yes	17	Regular			Had hæmorrhage
26 M. A.	19	4	Mother and sister	"	15	"		3,460,000	Pain in side
27 A. B.	23	2 $\frac{1}{2}$	Mother and brother	No	16	{ Metrorrhagia Menorrhagia		3,600,000	Has hæmorrhage
28 M. M.	27	3	3 Aunts and brother	Yes	14	Irregular		2,620,000	Pain in chest, dysp
29 R. T.	20	6	Mother and sister	Neg.	16	Regular		3,012,000	Dyspnœa
30 M. R.	19	1	Negative	No	12	Irregular			
31 M. E.	17	10	Good	"	14	"			
32 B. C.*	16	8	Mother	"	13	Regular			
33 A. L.*	17	$\frac{1}{2}$	Sister	No	12	Irregular			Been taking iron, scrofulosis
34 K. M.*	16	14	Brother and sister	Yes	15	Regular			
35 P. P.*	13	4	Sister	No	17	Irregular			
36 A. B.*	16	14	Mother	Yes	13	"			
37 N. T.*	14	4	Good	No	Never	"			
38 B. E.	22	6 $\frac{1}{2}$	Moth., bro., sister	Yes	15	Regular			Dyspnœa
39 M. N.	18	$\frac{1}{2}$	Negative	Neg.	17	Irregular			"
40 C. F.	17	4	Sister	Yes	13	Regular			Cough
41 M. B.	21	12	Father	"	14	"			Scrofulosis
42 K. D.	32	11	Mother	"	13	"			
43 A. McM.	20	$\frac{1}{2}$	Fath., sister, uncles	No?	11	Irregular			
44 K. H.	37	$\frac{1}{2}$	Father	Yes	15	"			
45 C. W.	14	$\frac{1}{2}$	Negative	Neg.	Never	"			
46 L. R.	14	$\frac{1}{2}$	Father and mother	Yes	15	Regular			Scrofulosis
47 A. B.	21	4	Good	No	14	"			
48 M. B.	20	5	Negative	Neg.	15	Irregular			
49 M. D.	29	3	Mother and brother	Yes	16	"			
50 M. B.	25	6	Mother	"	16	Irregular			
51 L. P.	16	$\frac{1}{2}$	Negative	Neg.	Never	Regular			

Name.	Age.	In house Years.	Tubercular History.	Exposure to contagion.	First Menstruation.	Menstrual Function.	Per Cent. Hb.	No. Corp. per Cm.	Personal History.
52 M. C.	38	18	Negative	Neg.	14	Regular	75		
53 M. E.	18	11 ⁶	Mother and sister	Yes	14	"	80		
54 U. B.	18	11	Father	No	12	"	80		
56 E. M.	21	3	Mother	Yes	13	Metrorrhagia	85		
57 K. K.*	17	5	Father	"	15	Irregular	80		
58 M. D.*	16	4	Mother and brother	"	14	Regular	80		Pain in side, dysp.
59 L. P.*	16	11	Sister	No	15	Irregular	85		"
60 M. H.	16	11	"	"	14	"	85		"
61 C. S.	30	6	Negative	Neg.	14	Regular	85		
62 G. P.	22	6	"	"	16	Irregular	80		Insane 11 yrs. ago
63 J. J.	17	12	Good	No	14	Regular	80		
64 C. B.	21	6	Negative	Neg.	15	Irregular	80		
65 L. R.*	16	5	"	"	14	Regular	85		
66 K. P.*	15	6	"	"	13	"	80		Exophthalmic goitre
67 A. R.	14	4	"	"		Irregular	85		
68 M. D.*	16	4	"	"		Regular	85		
69 M. T.*	14	4	Good	No	13	"	88		
70 N. T.	14	4	"	"	Never	"	85		
71 J. U.	21	3	Mother and sister	"	19	Irregular	85		
72 M. B.	16	1½	Sister	Yes	12	"	85		
73 R. D.	18	2	Good	No	13	Regular	80		Pain in side, dysp.
74 M. A.	21	2	"	"	16	"	85		
75 R. L.	18	2	"	"	12	"	85		
76 T. W.	5	4	"	"	Never	"	80		Dyspnœa
77 M. I.	16	2	Mother	Yes	12	Regular	80		
78 T. B.	19	2	Father and brother	"	13	"	80		
79 M. R.	16	4	Good	No	14	"	80		
80 A. H.	16	1	Negative	Neg.	12	Irregular	85		

81 M. K.	25	12	All family	Yes	14	Irregular	85	Cough
82 F. T.	18	1 $\frac{1}{2}$	Father	"	14	Regular	80	Slight cough
83 L. L.	30	16	Good	No	14	"	80	
84 M. B.	12	9	"	"	Never	"	85	Well
85 M. W.	14	$\frac{2}{3}$	Mother and brother	Yes	"		77	
86 E. F.	14	$\frac{2}{3}$	Negative	Neg.	"		80	
87 A. F.	21	4	Good	No	12 $\frac{1}{2}$	Regular	80	
88 M. M.	17	4	"	"	13	Irregular	83	
89 M. D.	30	15 $\frac{1}{2}$	Negative	Neg.	16 $\frac{1}{2}$	Regular	85	
90 E. G.	32	18	"	"	18	"	80	
91 K. H.	17	1 $\frac{1}{2}$	Bro., sis., moth., aunt	Yes		Irregular	80	Pain in side
92 E. B.	15	3	Negative	Neg.	Neg.	Regular	85	Well
93 M. T.	16	1 $\frac{1}{2}$	Mother	Yes	15	"	100	Dyspnœa
94 S. J.	25	2 $\frac{1}{2}$	Uncle	No	10	"	100	Pain in side
95 J. S.	15	1 $\frac{1}{2}$	Mother	Infancy, Yes	Never		95	Pain in side, dysp.
96 J. L.	30	4	Mother and brother	No	12	Slight, dark	100	Hæmorrhage
97 J. S.	13	1 $\frac{1}{2}$	Mother	Infancy, Yes	Never		95	Dyspnœa
98 E. O.	28	5	Uncles and aunts	No	16	Regular up to 2 months ago	90	3 hæmorrhages from stomach
99 B. K.	26	6	Moth., sis., bro.	Yes	13	Metrorrhagia	95	Cough, dysp., pain
100 J. M.	16	14	Mother	"	14	Regular	100	Well
101 C. T.	16	2 $\frac{1}{2}$	Mother and sister	"	13	"	90	"
102 M. A.	14	1 $\frac{1}{2}$	Mother	"	13	"	100	
103 L. M.	14	1 $\frac{1}{2}$	Uncles	No	12 $\frac{1}{2}$	"	90	
104 L. M.	21	3	Mother	Yes	16	"	90	
105 K. Z.	17	1 $\frac{1}{2}$	Mother and uncle	"	15	Irregular	100	
106 M. T.	24	6	Mother and brother	"		Regular	100	
107 E. B.	23	9	Mother and brother	No		"	100	
108 J. L.*	17	8	Sister	Infancy, Yes		"	100	

Name.	Age.	In house. Years.	Tubercular History.	Exposure to contagion.	First Menstruation.	Menstrual Function.	Per Cent. Hb.	No. Corp. per Cm.	Personal History.
109 M. O.*	17	11	Sister	No	13	Regular	90		
110 N. K.*	15	4	Father and sister	Yes	13	Irregular	100		Dysp., pain in side
111 M. D.*	16	8	Mother and brother	No	14	Regular	90		
112 K. C.	25	15	Good	"	16	Metrorrhagia	100		
113 H. G.	22	5	Negative	Neg.	16	Regular	100		
114 M.	35	2	"	"	14	"	100		
115 K. S.	25	6	"	"	16	"	95		Dyspnœa
116 F. M.	18	1½	Good	No	16	Irregular	100		
117 J. D.	19	1	Negative	Neg.	14	Regular	100		
118 A. H.	17	3	Good	No	13	"	100		
119 L. O.	19	2	Negative	Neg.	16	"	95		
120 F. W.	18	10	"	"	15	"	90		
121 K. H.	17	4½	Good	No	16	"	90		
122 C. R.	17	12	Negative	Neg.	13	"	90		
123 K. G.	17	12	"	"	13	"	90		
124 M. M.*	16	3	Good	No	13	"	100		
125 M. H.*	16	14	Negative	Neg.	13	"	90		
126 A. K.*	17	3	"	"	16	"	90		
127 M. D.*	16	8	"	"	15	"	90		
128 M. G.*	21	3	"	"	17	"	90		
129 T. M.*	17	1	"	"	16	"	100		
130 A. P.*	15	10	"	"	12	"	90		
131 M. R.*	13	5	"	"	Never		100		
132 M. E.*	13	2	"	"	"		95		
133 W. R.*	13	5	"	"	"		90		
134 W. E.	14	4	Good	No	"		90		Looks delicate
135 G. C.	12	2	Negative	Neg.	"		95		
136 A. H.	16	3	"	"	9	Regular	95		

137 M. L.	16	2	Negative	Neg.	15	Regular	100	Old scrofulosis
138 J. C.	19	1	"	"	16	"	100	
139 L. S.	21	3	Brother	Yes	20	Metrorrhagia	90	
140 M. C.	16	3	Good	No	13	Regular	100	
141 A. S.	15	² / ₃	Negative	Neg.	14	Irregular	100	
142 F. E.	17	1	Aunts	Yes	12	Regular	100	
143 K. W.	23	10	Negative	Neg.	13	"	90	
144 E. M.	16	⁷ / ₁₅	Good	No	14	Irregular	100	
145 K. P.	21	4	Negative	Neg.	16	"	93	
146 N. K.	15	¹ / ₂	"	No	13	Regular	100	
147 C. D.	21	8	Good	"	18	"	100	
148 F. S.	16	1 ¹ / ₂	Brother	Yes	14	"	100	Pain in side, dysp.
149 A. S.	16	¹ / ₄	Good	No	14	Irregular	95	"
150 M. G.	16	¹ / ₄	Negative	Neg.	14	Regular	95	
151 M. J.	16	² / ₃	Father and sister	Yes	14	Irregular	100	
152 H. L.	22	5	Mother	"	14	Regular	100	
153 A. K.	23	8	Good	No	15	"	100	
154 A. S.	31	7	"	"	15	Irregular	100	
155 A. R.	21	¹ / ₂	"	"	15	"	95	
156 A. B.	16	¹ / ₄	"	"	14	Regular	95	
157 M. O.	39	¹ / ₄	Negative	Neg.	Neg.	Negative	95	
158 L. B.	13	¹ / ₄	"	"	12	Regular	95	
159 A. T.	15	12	"	"	14	Irregular	90	Scrofula?
160 E. G.	15	¹ / ₃	"	"	Never	"	95	
161 A. C.	37	1	"	"	Neg.	Negative	90	
162 L. E.	17	¹ / ₄	Father	Yes	14	Regular	95	
163 T. W.	25	4	Sister	No	18	"	90	
164 M. M.	30	10	Negative	Neg.	Neg.	"	90	
165 A. L.	44	24	"	"	20	"	90	
166 L. D.	30	3	Mother	Yes	Neg.	"	90	

anæmia to the tuberculosis. But if we exclude all the cases of tuberculosis and scrofula found in the tables, we find that the above percentages are not materially changed—we then have sixty-nine cases with tubercular family histories, but having no apparent tuberculosis with an average of $80\frac{1}{2}$ per cent. of hæmaglobin. This percentage, when compared with the eighty-eight per cent. in the thirty cases with non-tubercular histories, affirms the conclusion arrived at above that there is a relationship between tuberculosis and anæmia, apart from the anæmia that is produced by *apparent* active tubercular disease.

By further study of the table we learn that fifty-two of the 166 girls examined were decidedly anæmic, having seventy-five per cent. less of hæmaglobin. Of the fifty-two anæmic cases only four, or about seven-and-a-half per cent., have good family histories, no tuberculosis; twelve, or about twenty-three per cent., had negative family histories, and thirty-six, or about seventy per cent., had tubercular family histories. Among the remaining 114 cases with more than seventy per cent. of hæmaglobin there were twenty-six, or twenty-three per cent., with non-tubercular histories; forty-five, or about thirty-nine per cent., with negative histories, and forty-three, or about thirty-seven-and-a-half per cent. with tubercular histories. Here we have two sets of figures worth comparative study, which we may for convenience arrange in the following manner :

	No tubercular family history.	Tubercular family history.	Negative family history.
52 cases, anæmia with less than 75% Hb.,	7 $\frac{1}{2}$ %	70%	23%
114 cases, non-anæmic, with more than 75% Hb.	23 %	37%	39%

The contrast between these two sets of figures is striking and the percentages are made from a sufficient number of cases to make their study valuable. These figures again show that there is a relationship between family tuberculosis and anæmia; a very small percentage of

anæmia cases have a family history free from tuberculosis, and a comparatively large percentage of the non-anæmic cases have good family histories. We conclude, therefore, that girls from tubercular stock are much more likely to be anæmic than girls from non-tubercular stock, or in other words, that family tuberculosis is one of the great sources of anæmia.

The following diagram is made from the same group of cases, except that all the cases of apparent pulmonary and glandular tuberculosis have been omitted. It will be seen that this omission does not materially alter the figures given above.

	No tubercular family history.	Tubercular family history.	Negative family history.
37 anæmic cases, 75% or less of Hb., with no apparent tu- berculosis,	73 $\frac{3}{4}$ %	72%	20 $\frac{1}{2}$ %
100 non-anæmic cases. More than 75% of Hb., with no apparent tuberculosis . . .	25%	40%	45%

The contrast in these two sets of figures is just as striking as in those given above, and these clearly prove that girls from tubercular stock, even though they be *apparently* free from tuberculosis, are very much more likely—in the ratio of seventy-two to seven-and-three quarters per cent.—to be anæmic than girls with non-tubercular family histories. This gives great importance to the tubercular or non-tubercular family histories in anæmic cases, since family tuberculosis is here shown to be one of the important causes of anæmia.

Let us now give attention to the cases of tuberculosis found in the tables. There are eight cases of glandular tuberculosis with no pulmonary disease (Nos. 7, 8, 9, 17, 25, 36, 42, 48). Case 34 is excluded because she had been taking iron for some time. The average amount of hæmaglobin in these cases was fifty-seven per cent.

There are ten cases of pulmonary tuberculosis with evidence of scrofula (Nos. 22, 24, 26, 28, 41, 81, 82, 96, 98, 99) and the average amount of hæmaglobin in these cases was eighty per cent.

Fifty-seven per cent. of hæmaglobin in cases of scrofulosis and eighty per cent. in the cases of pulmonary tuberculosis make indeed a striking contrast and these figures seem to show that it is rather tubercular disease of the lymphatics than tubercular disease of the lungs that produces the most pronounced anæmia.

The cases of scrofulosis included in these tables were by no means aggravated ones. They did not complain of being sick and were not under treatment at the time examined. The diagnosis of scrofula was made by the previous history, old scrofulous scars and enlarged glands.

The cases of pulmonary tuberculosis were also in a semi-latent stage. They complained of pain in the side and dyspnœa on exercise, all of them had a slight cough and four of them had had hæmorrhages. These symptoms and the physical signs sufficient to make a diagnosis.

Three of the girls of this class, within a month after the examination, developed a sharp attack of pulmonary tuberculosis following the influenza. The cases in the two groups are, for the reasons given, fit cases for comparison. Advanced and active scrofulosis is not here compared with mild and latent pulmonary tuberculosis; neither is latent scrofulosis compared with a very advanced and active pulmonary tuberculosis.

But if there is a difference in degree in these two groups, I think that so far as external symptoms and signs go the pulmonary cases are the more pronounced. But from a critical study of these cases which are not selected, but taken as they come from 166 examinations, I see no reason to doubt the correctness of the above figures. I think, therefore, that the table presented, so far as it goes, seems clearly to show that tubercular disease of the lymphatic tissues causes a great reduction in the amount of hæmaglobin in the blood, and that beginning tuberculosis of the lungs may cause very little if any reduction at all.

Case No. 19, with history of previous hæmorrhage, the amount of hæmaglobin was normal.

While it is not the purpose of this paper to inquire into all the causes of anæmia, it must be noted that in the group of cases presented, family tuberculosis so overshadows all other causes that their consideration becomes a matter of secondary importance. If we study the influence of lack of food and bad hygiene in producing anæmia in these girls before they entered the convent, we find that those that suffered most from these causes before entering the convents, and were the slowest to recover from the effect of these influences after entering the convent, were the girls with tubercular family histories, I am led by this investigation, therefore, to believe that while lack of food and bad hygiene are undoubtedly direct causes of anæmia, it is probable that the most deleterious influence of these factors is exerted in an indirect way by predisposing to and prolonging attacks of tuberculosis.† This is more evident if we note the fact that anæmic girls with non-tubercular histories ordinarily recover rapidly after entering the convent. In this connection we may call attention to the fact that of the non-tubercular cases with good family histories the lowest percentage of hæmaglobin was seventy per cent. and the next lowest seventy-five per cent.

Chronic diarrhœa, which is spoken of as one of the causes of anæmia, existed in only one case (No. 20), but this case also had a bad tubercular family history. If there be other factors in producing the anæmia in the group of cases I have here reported I have failed to discover them. Clearly then, we may conclude that the above table establishes a most important relationship between anæmia and family tuberculosis. But we have yet to answer the most important query. How is the anæmia produced in those cases that have no apparent tubercular disease! Is the anæmia a pre-tubercular con-

† It may be here noted that tuberculosis is probably a much more important factor in producing anæmia among convent girls than it is in the cases one sees in private practice, because of the fact that most convents are notoriously tubercular communities; but this would not detract from the relative value of the figures given.

dition the result of some mysterious inheritance, or is it due to a secret or hidden tuberculosis of the deep lymphatics or other blood-forming organs?

We may now intelligently answer this question in the light of the two propositions heretofore established, viz.: 1st. Family tuberculosis is one of the great sources of anæmia. 2d. Tubercular lymphatic disease causes profound anæmia, while beginning pulmonary tuberculosis may not produce anæmia.

In considering these propositions one is led to the opinion that the anæmia in apparently non-tubercular girls coming from tubercular stock is, when not readily explainable by other causes, very probably due to a *deep-seated* and *hidden* glandular tuberculosis.

Further light may be thrown on this question by studying in the table the cases of anæmia (below seventy per cent.) that have tubercular family histories but are themselves apparently free from active tuberculosis; there are eighteen such cases and all of them except four were exposed to the contagion of tuberculosis by living in a house with a person sick of this disease. In the four not exposed§ the average percentage of hæmaglobin was 64.5 per cent. In the fourteen exposed the average percentage of hæmaglobin was fifty-seven per cent. These averages, together with the fact that all the cases (5 in number) having fifty-five per cent. and less of hæmaglobin are in the exposed class seem to indicate that exposure to tubercular contagion, as well as the tuberculous family history, plays a rôle in producing the anæmia. This is strongly confirmatory of the opinion expressed above that anæmia is due to a deep-seated disease of the blood-forming organs.

Another very important point bearing on this question is that some of these apparently non-tubercular girls give on close questioning a history of having had, several years ago, "some kernels in the neck." In such a case, with a history of previous external lymphatic enlarge-

§ By "not exposed" is meant that they did not live for any length of time in the room of one sick of tuberculosis.

ment, it requires no stretch of the imagination to believe that the anæmia is due to some hidden tubercular process. The case reported at the beginning of this paper is an example of this kind. This girl had the worst possible family history and she had been constantly exposed to the contagion of tuberculosis for years. Notwithstanding these facts, when she presented herself to me for treatment there was no evidence of tubercular disease other than the pronounced anæmia (only twenty-five per cent. of hæmaglobin). But this girl two years before "had kernels" in her neck caused no doubt by tuberculosis of the lymphatic glands, and there is now no doubt in my mind, for the reasons given in this paper, but that her present anæmic condition is due to a tuberculous disease of the deep lymphatics. This view of the case also explains why there is so great a falling off in the amount of hæmaglobin in her blood, when the iron is discontinued.

From all the arguments presented in this paper, I think I am justified in the conclusion that *pronounced anæmia, without apparent cause, is strongly suggestive of concealed tuberculosis.*

There is another question of great importance which may here be inquired into. Why has this girl, whose history I have recorded, escaped pulmonary tuberculosis? Bearing on this question, Hayem says: "The chlorotic ground," in some instances, "seems to be unfavorable to the development of the tubercle bacillus." He here uses the term "chlorotic" as synonymous with the term "chloro-anæmic," which he uses to describe the anæmic condition associated with tuberculosis. In some instances he believes that the anæmia occurring in those of tubercular stock not only is not caused by tuberculosis but actually protects against this disease by furnishing "ground unfavorable to the development of the tubercle bacilli." In other instances he believes the anæmia is a pre-tubercular condition which, after the onset of the disease, either may or may not increase in severity with the progress of the disease. In still other instances he

looks upon the anæmia as a symptom of active pulmonary or other tuberculosis which progresses with the disease. These various relations between anæmia and tuberculosis, together with the various forms of tubercular chloro-anæmia (simple anæmia, chlorosis and pernicious anæmia) which Hayem so indefinitely describes, leaves one in as much doubt as ever as to the value and meaning of anæmia in the study of tuberculosis. But it was not to offer a criticism on the work of Hayem that the above references are made, but rather to confirm in a modified form, his observation that "chloro-anæmia" in some instances "seems to protect against tuberculosis." I also have observed that some of these anæmic girls with tubercular family histories, even though they may be repeatedly exposed to tubercular contagion, escape active pulmonary tuberculosis for a surprisingly long time. The case reported is a striking example. But in the light of the preceding argument I believe that it is not the anæmia, as Hayem supposes, that gives the protection, but it is the cause of the anæmia, viz., the deep-seated and glandular tuberculosis or hidden scrofula.

In this connection may be mentioned an oft-repeated clinical observation that children who have recovered from an attack of scrofulosis seem to have a partial immunity against pulmonary tuberculosis and I may add, by way of parenthesis, that the conferring of immunity from pulmonary tuberculosis by an attack of scrofulosis is not inconsistent with the most rational theories of immunity as they are taught to-day.

The above explanation is given because it offers a satisfactory explanation of Hayem's apparently inconsistent observation, that in certain cases the anæmia protects against tuberculosis; for surely it is difficult to believe that the anæmia itself could in any way protect against the tuberculosis, but it is not difficult to understand that the deep-seated glandular tuberculosis which is the cause

|| See my paper "The Mechanism of Immunity," *Philadelphia Medical News*, 1892.

of the anæmia may, when recovered from, offer some protection against pulmonary tuberculosis.

In this paper the term anæmia has been used in a general sense and refers only to the diminution in the amount of hæmaglobin in the blood and has no reference to the number of corpuscles. Although my observations on the classification of the anæmia of tuberculosis are not yet ready for publication, they lead me to believe that the typical anæmia of tuberculosis approaches more nearly simple anæmia than chlorosis, while in many instances the reduction of corpuscles does not correspond to the reduction in hæmaglobin, often being less or rarely greater; yet this difference is not so great as to approach either the chlorotic type on the one hand or pernicious anæmia on the other.

Cases of chlorosis, however, do occur and they are as a rule of more than ordinary interest and are very suggestive of the importance of this field of work; for example, one case of simple anæmia was treated with iron until the amount of hæmaglobin had reached seventy-five per cent. Under the iron the corpuscles had increased proportionately, the iron was discontinued and arsenic was given for three weeks. At the end of this time the number of corpuscles was 4,500,000 to cm. and the amount of hæmaglobin had remained the same, seventy-five per cent. This case had under arsenic passed from simple anæmia to one of chlorosis. Another case ¶ in which menorrhagia was a prominent symptom was decidedly chlorotic. Another very instructive case ¶ of chlorosis in a colored child nine years of age was one of hip-joint disease, with extensive lymphatic involvement. The long-continued suppuration (three years) in this case had been followed by amyloid disease of the liver and kidneys. The liver in this case is enormously enlarged, occupying almost the entire abdomen. The possible connection in this case between the destruction of the liver function and the chlorotic condition of the blood

¶ These cases are not included in the tables. They belong to another group of cases examined later.

SUPPLEMENTAL TABLE.

Name.	Age.	In house.	Tubercular History.	Exposure to contagion.	First Menses	Menstrual Function.	Per Cent. Hb.	No. of Corpuscles.	Personal History.
1 J. W.	19	6	Mother	Yes	15	{ Metrorrhagia Menorrhagia	30	3,730,000	Pale
2 M. S.	18	6	"	"	15	Regular	65		Well
3 A. B.	11	6	Negative	Neg.	Never		65		Lymph. enlarged
4 B. H.	7	$\frac{1}{10}$	Mother	Yes	"		65		"
5 K. E.	17	10	Negative	Neg.	15	Regular	70		Well
6 M. G.	14	$\frac{1}{8}$	Sister, mother, fath.	Yes	13	"	70	2,200,000	Glands enlarged
7 M. W.	17	8 $\frac{1}{4}$	Father and mother	"	13	Irregular	70		Pale, heart disease, valvular
8 E. E.	14	9	Negative	Neg.	13	Regular	70		Glands enlarged, goitre
9 M. H.	14	8	Mother	Yes	13	"	70		Glands enlarged
10 E. G.	14	6	"	"	Never		70		No lymph. enlarg.
11 L. T.	12	2	Father	"	"		70		Phthisis
12 C. H.	14	$\frac{1}{6}$	Mother	"	"		70		No lymph. enlarg.
13 R. N.	13	4	Negative	Neg.	"		70		Lymph. enlarged
14 A. H.	11	$\frac{1}{2}$	Mother	Yes	"		70		No lymph. enlarg.
15 K. M.	11	2	Mother, 2 brothers	"	"		75		Decided lymph enlargement
16 R. O'C.	7	4	Father	No	"		75		Decided lymph enlargement
17 M. W.	14	6	Mother	Yes	"		75	4,400,000	Pain in side, dysp.
18 K. B.	17	3 $\frac{1}{4}$	"	"	15	Regular	75	3,360,000	Scrofula
19 M. G.	18	6	Negative	Neg.	14	"	80		Well

20 M. R.	17	7	Negative	Neg.	14	Regular	80	Well
21 A. M.	16	7	"	"	15	Irregular	80	Pain in side
22 A. F.	16	3½	Father	Yes	16	Regular	80	Phthisis
23 B. T.	14	3	Brother	"	Never		80	Well
24 E. D.	16	2	Good	No	"		80	"
25 N. C.	13	1½	Negative	Neg.	"		80	Phthisis
26 M. M.	13	2	"	"	"		80	Lymph. enlarged
27 K. M.	14	10	Father and mother	Yes	"		80	"
28 T. M.	12	10	"	"	"		80	Phthisis
29 A. H.	12	2½	Negative	Neg.	"		80	Well
30 E. H.	16	1½	"	"	"		85	"
31 L. S.	16	7	Father and mother	No	14	Regular	85	Lymph. enlarged
32 M. M.	13	2	Mother, 2 brothers	Yes	13	"	85	Phthisis
33 A. O'C.	13	4	Father	"	Never		85	Well
34 N. F.	13	6	Good	No	13	"	88	"
35 K. K.	18	8	"	"	14	"	100	"
36 J. P.	17	6	"	"	15	"	90	"
37 M. F.	16	8	"	"	13	"	90	Phthisis
38 M. C.	17	2	Brother	Neg.	16	"	90	Well
39 M. L.	17	4	Father and mother	Yes	16	"	100	"
40 M. M'C.	14	1	Negative	Neg.	12	"	90	"
41 M. B.	15	5	"	"	14	"	95	"
42 M. S.	16	5	Mother	Yes	14	Negative	87	"
43 A. O.	14	2	Good	No	13	Regular	90	Phthisis
44 J. F.	18	2	Father	Yes	13	"	90	Well
45 B. M'C.	16	8	Good	No	14	"	95	"
46 C. W.	14	6	"	"	13	"	90	"
47 J. W.	14	2	Negative	Neg.	Never		100	"
48 N. W.	15	10	"	"	14	Irregular	95	"
49 A. R.	14	2	"	"	Never		90	"
50 K. M'C.	15	9	Good	No	14	Regular	100	"
51 M. H.	14	2	"	"	14	"	100	"
52 M. W.	13	9	Negative	Neg.	Never		90	"
53 E. S.	11	2	Good	No	"		95	"

offers a tempting field for speculation. These interesting chlorotic cases are, as I have said, the exception and not the rule, and simple anæmia is the characteristic anæmia of tuberculosis.

As confirming the conclusions heretofore arrived at, the following points taken from the following table are worthy of note :

25 cases with tubercular family histories have an average of	75 $\frac{3}{4}$ Hb.
17 " " negative " " " "	88 $\frac{1}{4}$ "
11 " " good " " " "	92 $\frac{1}{2}$ "

Excluding the cases of *apparent* pulmonary and glandular tuberculosis we have

11 cases with tubercular family histories have an average of	72 % Hb.
12 " " negative " " " "	86 $\frac{1}{2}$ % "
11 " " good " " " "	92 $\frac{1}{2}$ % "

It is here worthy of note that in none of the children with good family histories was there any evidence of tuberculosis.

The following table shows the relationship of the anæmia to the tubercular or non-tubercular history of these girls. The eighteen cases having less than seventy-five per cent. of hæmaglobin are classed as anæmic; the thirty-five cases having more than seventy-five per cent. of hæmaglobin are classed as non-anæmic.

	No tubercular family history.	Tubercular family history.	Negative family history.
18 anæmic cases, . . .	None	14 cases, or 77 $\frac{2}{3}$ %	4 cases, or 22 %
35 non-anæmic cases, . . .	11 cases, or 31 $\frac{1}{2}$ %	11 cases, or 31 $\frac{1}{2}$ %	13 cases, or 37 $\frac{1}{4}$ %

The examinations embraced in the supplemental table on pages 820-821, were made too late to be included in the table upon which this paper was based. An examination of this supplemental table will confirm and strengthen the conclusions arrived at above. These girls belong to the preservation class of the convent of the Good Shepherd, located at Carthage, Ohio.

The following table shows the relationship of the anæmia to the tubercular family history after all cases of apparent tuberculosis have been excluded.

	No tubercular family history.	Tubercular family history.	Negative family history.
8 anæmic cases, with no ap- parent tuberculosis, . . .	None	7 cases, or 87½ %	1 case, or 12½ %
26 non-anæmic cases, with no apparent tuberculosis, . . .	11 cases, or 42½ %	5 cases, or 19¼ %	10 cases, or 38¾ %

This supplemental table also contains thirteen cases of evident tubercular disease of the lymphatics, with an average of seventy-three per cent. of hæmaglobin, and six cases of evident tubercular disease of the lungs, with 84½ per cent. of hæmaglobin.

These percentages confirm the conclusion heretofore arrived at, that it is tubercular disease of the lymphatics, rather than tubercular disease of the lungs, that produces the most pronounced anæmia. In short, we may say that a critical study of the second table confirms in every particular the conclusion drawn from a study of the first table and strengthens the deduction that *pronounced anæmia without apparent cause is strongly suggestive of concealed tuberculosis.*

This observation may throw some light on many of the obscure cases of anæmia and chlorosis that are constantly coming under observation.

DISCUSSION.

Dr. FISCHER.—I would like to state what I said in connection with the paper of Dr. Caillé. He said amongst other things that he had used ozone in the treatment of tuberculosis with no benefit whatsoever, and had had benefit in connection with chlorosis and anæmia and also in pertussis. I asked Dr. Caillé whether he had examined the secretions or excretions of patients afflicted with anæmia or chlorosis for tubercle bacilli. He said he had not. Now I am confident that, as Dr. Rachford has just said, cases of anæmia and chlorosis with nothing else

but anæmia are very often cases of true tuberculosis, because I have examined both secretions and excretions. Especially have I seen one case of a young girl with an obstinate form of chlorosis, who suffered from a severe form of diarrhœa and wherein from the discharges of the bowel I could get distinct tubercle bacilli. She had no cough whatsoever and this case was attended with anæmia for almost two years until these bacilli were found. It was then proven that she had been in a family as nurse where a young girl had died from tuberculosis. I believe this person was infected and had no other symptoms except the diarrhœa.

Dr. OSLER.—In how many cases did he find a normal percentage of hæmaglobin in the whole group examined?

Dr. RACHFORD.—I really can't tell that, but I found a great proportion of the cases above eighty-five per cent.

Dr. OSLER.—Is it not exceptional to get in young women a normal percentage of hæmaglobin?

Dr. RACHFORD.—Yes.

Dr. OSLER.—I would like to express my appreciation of the value of this paper. It seems an admirable piece of clinical observation and I think the doctor's conclusions are those which have already been arrived at, that the anæmia of tuberculosis is very commonly a simple anæmia, not chlorotic anæmia, though there are some instances undoubtedly in the early stages of tuberculosis in which the condition is what the French writers describe by the term chloro-anæmia.

Dr. ROTCH.—I want to express my appreciation of the very large amount of work that must have been done to prepare a paper of that kind.

Dr. RACHFORD.—I would say that I have besides this, and would have incorporated in this paper, quite a group of younger cases had the time permitted. I have made probably one hundred blood examinations in a convent back of Cincinnati. This is not incorporated in this group and they are very much younger children, from six to ten years of age. I think nearly all of these cases substantiate the same thing as those in this paper.

A CASE OF SPORADIC CONGENITAL
CRETINISM.*

BY CHARLES W. TOWNSEND, M.D.,

Boston.

CASES of congenital cretinism are sufficiently rare in this country to make this instance worthy of record.

The patient's father was born in Guttenburg, Sweden, the mother in Christiana, Norway, and they came from there to Boston four and six years respectively before the child we are about to consider was born. They are each twenty-five years old, healthy and well developed, and this is their only child. The family history is good with the exception of one maternal brother who died of phthisis. There is no history of cretinism in the family, and there is no history or evidence of syphilis.

The baby, a female, now (April, 1891) a year and eight months old was delivered with forceps and was feeble at birth. It was nursed till the age of eighteen months, and since then has been bottle-fed.. The child has never had any distinct illness nor at any time any eruption on its skin, but it always has been feeble, unable to sit up or even hold up its head, unable to help itself in any way and taking no notice of surrounding objects until the age of eight months; since then it appears to notice them a very little. Nearly every day the child appears for a space of several minutes to an hour perfectly quiescent, the eyes open and staring, the respirations faint and almost suppressed. To the mother the child appears at these times almost as if it were dead.

With the exception of this latter peculiarity we have here the clinical history of a case of idiocy, but examination of the infant points at once to something more. In fact the physical appearance of the child corresponds exactly with that of cases of sporadic congenital cretinism.

The child although twenty months old is not larger than a baby of ten months. It is unable to hold up its

* Read before Am. Ped. Soc., Boston, May 3, 1892.

head or sit up ; its expression is vacant and peculiar from the characteristic features of this disease. Its eyes are narrow and small owing to the thickened and œdematous skin of the face. The base of the nose is depressed and flattened. The tongue is large and thick, partly protruding from the half-open mouth, from which there is a constant slight dribbling of saliva. There are no teeth. The neck is very short and thick with abundant subcutaneous fat, although no distinct fatty tumors, sometimes found in these cases, are observed. There is no enlargement of the thyroid gland, in fact no gland can be discovered on palpation.† The chest is small, the abdomen, large. There are no enlargements of the epiphyses of the ribs or bones of the extremities, which are relatively short as will be seen by the accompanying photograph and by the measurements, the thumbs reaching only to the umbilicus when the child is lying on the back with the arms extended. The hands are short and broad. The tibiæ are slightly curved outwards.

The measurements are given in the following table, compared with those of a normal baby of the same total length, but one that was only ten months old.

CRETIN, 20 MONTHS.		NORMAL CHILD, 10 MONTHS.	
Total length	24½ inches	24½ inches	
Trunk	10 "	8½ "	
Upper arm	3½ "	4½ "	
Forearm	3 "	4 "	
Thigh	4 "	5¼ "	
Leg	5 "	6 "	
Circumference of head	17 "	18¼ "	

The skin is of a yellowish color ; the lips, tongue and extremities are noticeably cool and slightly cyanotic, the extremities having a mottled appearance from the sluggishness of the circulation. The temperature in the rectum is 96.8° F.; the pulse 86 ; the respiration slow and irregular from twelve to seventeen in a minute, embarrassed

† According to Bury, Keating's *Cyclopædia*, vol. ii., p. 285, in sporadic cases the thyroid gland is usually absent.

and noisy from the mucus and saliva in the mouth and trachea.

The low temperature, slow pulse and respiration all point to the sluggish almost hybernating condition, which at times is so exaggerated that the child appears to the



mother as if dead, as has already been described. This peculiar state of quiescence is according to Bury characteristic of cretins and distinguishes their mental condition from that of other forms of idiocy.

The thoracic and abdominal viscera show nothing abnormal on examination. The urine contains no albumen. The eyesight and hearing seem to be fairly normal. The patella reflex is present.‡

I am indebted to Dr. G. W. Fitz for the accompanying photograph, which shows many of the characteristic peculiarities.

DISCUSSION.

Dr. HUBER.—Cases of cretinism, semi-cretinism and the cretinoid condition are rather frequent in the tenement districts in New York owing to the influx of immigrants. In the past five years I have seen quite a number in private and a larger number in my service at the Vanderbilt clinic. The most marked one I saw was in a child of four months in whom there was a large diffuse lipomatous growth extended from the occiput half way down to the back and was lost on either side over the scapular region. This was the diffuse lipomatous condition referred to by many of the authors and occurs only in the sporadic and not in the endemic cases. In the sporadic cases we do not get the enlarged thyroid so common in the cases that occur in Switzerland. In the sporadic cases the thyroid is very poorly developed or absent. A number of these cases die at a very early period of life, I have seen two who have attained the age of eighteen and twenty-five who are only twenty-seven to thirty inches high, but these are rather semi-cretins than pure cretins for they have a fair amount of intelligence. They have the characteristic facial expression, the short antero-posterior diameter of the head and a large tongue.

Dr. EARLE.—I was disappointed in the last remark of Dr. Townsend that the child died. I was going to ask him to show me that case. I have never heard of a case in our city. Perhaps that is one of the luxuries that we have the typhoid bacillus and do not have the cretins.

Dr. OSLER.—I have had occasion to go through the literature on the subject a short time ago and with the exception of two references so ancient, in Massachusetts, that I could not get at them, there is no American litera-

‡ April 25, 1892. The child died last summer of intestinal trouble, The mother has since borne an infant now six months old, healthy and normal in every respect.

ture on cretinism. There are references of two cases in Massachusetts, but the disease is you may say practically unknown in America. It is stated that instances occur in Canada among the Canadians. I drove some distance from Baltimore to see two instances, but they turned out to be rachitic dwarfs. There is one case at the Philadelphia hospital, but no case has come under my personal observation until about three months ago when a case was brought to me from the western shore of Maryland. It was perfectly typical. It is somewhat remarkable that the literature on the subject is so scanty. Do you know Dr. Townsend whether many cases have been seen about Boston?

Dr. TOWNSEND.—I do not know of any.

Dr. ROTCH.—It must be very rare indeed. One case by Dr. Whitney eight years ago and this by Dr. Townsend.

Dr. OSLER.—Dr. Adams tells me that Dr. Jacobi reported a case some years ago at our society. It would be interesting if Dr. Huber would extend his observations on the subject.

Dr. ROTCH.—Five or six years ago I read a paper in which I compared the bones of the cretin and the syphilitic and rachitic bones. The comparison is very characteristic.

Dr. HUBER.—One evening at the Academy of Medicine Dr. Jacobi showed three cases which we gathered without any trouble. Most of the cases have been importations.

Dr. TOWNSEND.—Of what nationality?

Dr. HUBER,—Russian Poles, low German and one or two Swedes, most of them Russian Poles.

Dr. OSLER.—I believe there is no cretin in any of the idiotic asylums. I had inquiries made more than a year ago. I know from my own observation that there is none in the large asylum for feeble minded children in Pennsylvania.

SYPHILITIC BRONCHO-STENOSIS IN CHILDREN.*

BY A. SEIBERT, M.D.,

New York.

WITHIN the last three years four little patients have been under my treatment, presenting such analogous evidence of disease, that I may safely condense their histories into one. These children were one-and-a-half to three-and-a-half-years of age. In all the trouble was chronic, having lasted three, five, four and eight months, when first seen by me. Cough, later hoarseness and aphonia were the primary symptoms. Then short breathing and occasional dyspnœa were noticed, gradually becoming more frequent, till at last, a barking, croupy cough, associated with more or less severe attacks of dyspnœa would take up most part of the night, relief only coming after copious expectorations of mucus. Thus gradually a condition developed itself, which at times, closely resembled empyæma and asthma, and again, at others appeared to be identical with acute laryngeal stenosis. In two of these cases, the youngest child of twenty months and the oldest of three-and-a-half years, the croupy character of the trouble was more conspicuous, while in the symptoms of the other two patients the respiration presented more of an asthmatic variety.

The physical examination of the thorax evinced the following conditions: Very marked respiratory excursions of the entire thorax. Deep retraction of the suprasternal and supraclavicular fossæ of the intercostal spaces, and marked peri-pneumonic furrow. The action of the right half of the thorax is less marked and slower than that of the left half. The pectoral fremitus is diminished posteriorly on the right side. *Percussion* brings forth nothing abnormal over the left, but posteriorly over the right lung, corresponding to the middle lobe, one, and in two cases two areas of dulness are found irregular in circum-

* Read before the Am. Ped. Society, Boston, May 4, 1892.

ference, but corresponding in being broad below and narrow at their upper termination. In no case did this dulness extend to either the base or the apex of the lung.

Over the entire left lung *auscultation* reveals normal vesicular breathing and loud bronchial respiration transmitted from a distance. *Over the right lung vesicular breathing is entirely absent*, and in its stead sharp bronchial stenotic in- and expiration is heard, mostly marked in front and behind the upper half of the right side, and with this large and small moist râles over the dull area.

Oral inspection always reveals granular swelling of the mucous lining of the lower pharynx, yellow, purulent secretion from the larynx and trachea, and in the oldest child, papulous ulcers and gummous infiltrations of the tongue and pharynx. Moderate multiple glandular infiltration of the neck and groin. Purulent discharge from the nose. Somewhat puffy face. No cicatrices. Fairly nourished general condition. *Temperature normal.* Pulse very rapid. Respiration irregular and slow. Stenotic respiration sometimes very loud, less marked at others. Digestion, bowels and appetite in order.

All of these four little patients were children of poor Russian Hebrews, who had but lately immigrated to this country. In the first three cases I never had a glimpse at the fathers; in the fourth, that of the girl three-and-a-half years old (observed during January of this year) the father denied all infectious possibilities, although here the pathological changes of the mouth, throat and larynx (as far as visible by the laryngeal mirror) were, beyond a doubt, of luetic origin. Laryngoscopic examination showed marked hypertrophic swelling of mucosa and of the vocal chords in this case. No ulcerations were seen in the larynx, but well marked in the oral cavity.

In attempting to make a diagnosis, it was clear from the start that we had to deal with an affection of the respiratory tract which could simulate marked laryngeal croup to perfection. In the second of my cases, a boy twenty months old, hoarseness, aphonia, croupy cough and respiration were so characteristic for laryngeal sten-

osis during his first visit to the dispensary, that Drs. Richard Stein and Degner induced me to intubate the child the next morning at the New York Polyclinic, but with the distinct understanding and outspoken expectation that the placing of the O'Dwyer tube would bring *no* relief. The result corroborated my opinion, for respiration remained the same after intubation, so that we withdrew the tube after five minutes, thus showing that we had to look for the hindrance of respiration below the larynx.

If, after placing the O'Dwyer tube in the larynx, laryngeal diphtheria extends downward into the trachea and the bronchial tubes, we now listen to the chest, we will find analogous respiration on both sides, namely, transmitted stenotic and diminished vesicular breathing. But in these cases now under discussion, we have quite a different auscultatory result. Over the left lung we hear transmitted stenotic and plain vesicular breathing, while over the right we find marked stenotic respiration alone (the vesicular breathing being absent entirely) and more or less developed râles over the dull area. This difference forces us to assume that the hindrance to free respiration must be situated not alone below the larynx but also below the bifurcation.

The dull area being limited to but a comparative small portion of the right lung, we could exclude the changes in the lung tissue proper as being the sole cause of the dyspnœa, aside of the stenotic respiration, which would not be so accounted for. A stenosis of a bronchus of the second or third order could not give rise to these symptoms, for then vesicular respiration would have been found in those portions of the right lung not supplied by this air-pipe.

These calculations then left no other alternative than to connect the obstruction to breathing with the main right bronchus. Of what nature could this hindrance to respiration in the right bronchus consist of?

In the first of these cases I was very much inclined to diagnose a *foreign body* in the right bronchus, sufficiently large to cause stenosis, but yet too small to entirely shut

off all supply of air, and this "probable" diagnosis was entered into the book in the dispensary after the first examination. The local infiltration of the right lung could have developed itself secondarily from the local bronchitis and peri-bronchitis. Weil (*Deutsch. Archiv für klin. Medicin*, Bd. 14) reports the case of a boy of thirteen years, who carried part of a nut-shell (aspirated while eating) in his right bronchus for three-and-a-half months with but slight inconvenience, consisting in retarded respiratory movements of the right thoracic wall and distinctly audible labored-respiration, increasing only to dyspnœa after jumping or similar exertions. Bronchitis and lung infiltration were absent, which may be explained by the shell being aseptic, as it was later on coughed up unchanged, during the boy's stay in the hospital. Furthermore, the *gradual* development of our cases did not speak for a foreign body, otherwise dyspnœa and stenosis ought to have been noticed first and cough, hoarseness and aphonia later on, while in all of our cases it was distinctly stated that the order was exactly the opposite one.

According to these calculations we could but now assume a chronic, slowly developing affection of the main right bronchus and the particular lung area.

Tumors pressing upon the bronchus, like aneurisms and lymph nodes, could neither explain the purulent circumscribed bronchitis nor the laryngo-tracheitis of the same character, seen in all cases. Aside of this such tumors, after causing marked dyspnœa from four to eight months, would most likely have attracted attention by percussion as well as by accompanying cachexia.

After excluding these possibilities, none but such general systemic infections could be considered as were able to cause chronic affections of these parts, namely, *tuberculosis* and *syphilis*. It may be well to recall here, that the general condition of these children, considering their tedious and severe ailments, was remarkably good, a symptom which certainly did *not* speak for extensive tubercular affection of the larynx, the trachea and the lung. Furthermore, *fever was absent*. Possibly an occas-

ional rise of temperature was necessarily overlooked (for the children were only seen at the dispensary and Polyclinic), and it is likely that absorbed bronchial secretion should have caused occasional fever, but a hectic fever characteristic to tuberculosis and never absent in so advanced a stage, was wanting here entirely. Enlarged tubercular lymph nodes may exist without fever and may compress a bronchus (as has been often reported), but if laryngeal, tracheal and pulmonary changes also exist, then certainly fever and cachexia have always been present.

The locality of the pulmonary lesion in our cases did not speak directly for tuberculosis. This point should not be emphasized too markedly, and certainly not as Grandidier has it, who looks upon every primary infiltration of the right middle lobe as non-tubercular, yet the fact is striking that the apices were free in all of our cases. Clinical experience made it highly probable, that such an extensive affection, if tubercular, would, in the course of four to eight months have invaded other portions of lung tissue, particularly so in children. Other non-tubercular affections of the chronic pneumonia variety, again should not account for the absence of fever and the presence of stenosis. Therefore, these clinical pictures could only be drawn by a pathological process which, by means of interstitial changes could not only cause thickening of the lung tissue and stenosis of the bronchus, but also granular catarrh of the mucosa of the respiratory tract, and this to my knowledge could only be accomplished by syphilis.

How does this diagnosis coincide with the literature on this subject?

Syphilitic broncho-stenosis has been described by E. Wagner and Gerhardt. The description of broncho-stenosis in children given by Weil, in Gerhardt's cyclopædia (of diseases of children) in the chapter on the diseases of the bronchi, is so clear and well defined and coincides so exactly with the symptomatology of our cases, that every doubt must be excluded. Gerhardt, Kopp, Hüttenbrenner, Dittrich and Weil have published cases of

syphilitic broncho-stenosis. In two cases of Weil and one of Gerhardt, anti-syphilitic treatment resulted in speedy and permanent cure.

It is not intended to review the whole literature on pulmonary syphilis, and I must here refer to the studies of Virchow ("Ueber die Natur der constitutionellen syphilitischen Affectionen," 1859) and of E. Wagner ("Ueber das Syphilom," 1863) and the writings of Schnitzler, Laccraux, Fournier, Cornil, Oppolzer, Grandidier and others, but I would like to insert here, that Dillon Brown has but recently (ARCH. OF PEDIATRICS, March, 1892) reported the case of a boy of six years, suffering from syphilitic laryngeal stenosis necessitating intubation, which was promptly cured by anti-luetic treatment.

Syphilitic broncho-stenosis in children is of rare occurrence, according to Gerhardt and Weil, and much rarer than bronchial compression by tubercular nodes. In most pediatric text-books pulmonary syphilis is usually passed over by a few general remarks. Schnitzler claims that pulmonary syphilis can only be recognized by the laryngeal mirror. This would exclude all cases in very young children.

But if we recapitulate the chief symptoms and the source of this affection, we will hardly arrive at other conditions. The start is usually made in the upper air-passages, with cough, hoarseness, and aphonia. Gradually and slowly signs characteristic of stenosis appear, to remain for weeks and months, only varying in intensity. Muco-purulent expectoration, from larynx, trachea and one-sided bronchitis. At last pulmonary infiltration in the tissue adjoining the right bronchus, dulness over the middle lobe posteriorly; apices free. Chronic course, three to eight months. No fever. Comparatively good nourishment of patient, in spite of long suffering, and at last prompt success of anti-syphilitic treatment.

The course our four cases took was as follows: The first, a girl of two-and-one-half years, came under the care of Dr. M. Gross, then my assistant at the New York Polyclinic. The purulent laryngo-bronchitis, the pulmo-

nary infiltration and the broncho-stenosis (which had been diagnosed by me) gradually seemed to get worse, so that at last intubation was performed. But the O'Dwyer tube did no more benefit this stenosis than that of our second case reported above, and the child died of apparently pneumonic symptoms. The cause of this affection was not diagnosticated by me nor by the other gentlemen who saw the case later on.

After repeated physical examinations and intubation had shown in the second case (a boy aged twenty months), that we had to deal with another stenosis of the right bronchus, chronic infiltration of part of the right middle lobe with purulent bronchitis, tracheitis and laryngitis, the patient, according to the rule, "anything you cannot diagnosticate, is best treated by iodide of potassium," was given this drug in liberal doses. The result of this treatment after one week was so marked and the farther progress towards health was so steady and rapid, and restitution of all parts affected by the syphilitic virus was so complete, that the mother, assuming her child to be perfectly well, staid away after six weeks of treatment.

The last two cases, (girls aged two-and-a-half and three-and-a-half years, respectively) made speedy recovery on energetic anti-syphilitic treatment (iodide of potash and inunctions of mercurial ointment combined), though the one child had been very ill for five and the other for eight months. In these last two cases the diagnosis of syphilitic broncho-stenosis was made, and the histories, the subjective and objective symptoms, and the result of the treatment fully justified this diagnosis.

The histological pathologist may question the correctness of our diagnosis for want of necropsies, and the bacteriologist for not producing a culture of the *Lustgarten-bacillus* from the diseased parts; but the clinician and the general practitioner will undoubtedly, nevertheless, diagnosticate syphilitic affection of the air passages with the broncho-stenosis in similar cases, and will be much pleased to find that the iodide of potash is relieving and curing his little patient from tedious and intense suffering.

For the ultimate object of our science is to cure the sick and to protect the healthy, and the result of any rational treatment is the strongest argument for its correctness, regardless of all criticism.

If I have but succeeded in calling your attention to the possibility of such morbid conditions, as related in this paper, my object has been fully reached.

DISCUSSION.

Dr. CAILLÉ.—I have been very much interested in Dr. Seibert's communication and description of the pathological process and the clinical features I have seen a number of these cases, mostly in younger children. One case I remember was in a boy of seven. In two cases I made the autopsy and found that the areas of dulness that were described by Dr. Seibert were not inflammatory foci, they were atelectatic areas.

As regards the one-sided stenotic respiration, I would mention that we frequently find this symptom present in acute membranous stenosis of the trachea. I think, therefore, that this one-sided stenotic respiration, this want of vesicular breathing on one side cannot be made use of to differentiate between the acute and chronic stenosis.

As regards treatment I would again draw attention to the fumigations with calomel. They, in my opinion, are preëminently indicated in such cases. If for a day or two calomel fumigations are made use of, say ten to fifteen grains every three hours, and if afterwards this treatment is followed by the administration of iodide of potassium, we should, in the cases described by Dr. Seibert, get a very good result within a week, at least, and possibly a better result than if the iodide of potassium or mercury is used in other forms. We get a very rapid action. We get not only the constitutional but a local effect, and this seems to be what we want in these cases.

Dr. JACKSON.—If I may speak of two cases, hardly suitable here, I should like to. They were adults. The first case I saw in 1884. There was a stenosis of the larynx. There were cicatrices in the larynx, ulceration, and a few small cicatrices in the mouth. There were signs of consolidation in the lungs which were then considered by the physicians who saw it to be tuberculosis. The diagnosis of syphilis was not considered. The patient had a very annoying hard cough so that the patient was removed from the general wards of the hos-

pital to a country ward. I speak of these details because the result was rather important. In the country hospital at that time Dr. Dillon Brown was the junior officer, and he made the very acute diagnosis at that time of syphilis, and entirely cured the patient who had been sent there to be made comfortable the rest of her life.

The second case was a Russian Hebrew whom I saw five years ago, who had marked signs of syphilis in surface lesions. He had ulcerated laryngitis. He had the stenotic breathing which Dr. Seibert has spoken of in the children, but not to as marked a degree. There was a small area of consolidation in the middle part of the right lung, that is, not in the apex or base, but rather in the upper part of the middle lobe. That man also improved a great deal on specific treatment. He passed from my observation as I left that district as a physician, but I have seen him within a year or so apparently not sick. In the second case I made a careful examination for the presence of tubercle bacilli without finding any. In the first case there was no examination made for the presence of tubercle bacilli as far as I know.

Dr. SEIBERT.—I did not enter into the pathological anatomy of these cases or of similar cases, because that has been fully described. I only referred to the literature on the subject. Those who are interested may there read it much better than I can give it here so as not to make my paper too long. I am not a friend of long papers, not of reading them and not of listening to them.

In regard to making use of the absence of breathing on the one side in chronic stenosis, with regard to what Dr. Caillé said, I did not at all use that symptom to differentiate between diphtheritic affection and a possible chronic affection. There is no necessity of doing that. If the people tell you that the child has been croupy and has had croupy breathing for months you will at once exclude diphtheria without taking it into consideration, but you will use it in differentiating between locating the stenosis in the larynx, the trachea or one or two bronchi, and there, of course, it is necessary. There is one form of syphilitic stenosis that will not be benefited by iodide of potassium or anti-syphilitic treatment though it is of syphilitic origin, namely, where cicatrices press upon the bronchial tubes and occlude them. There is no relief from iodide of potassium. Such cases have been reported and the necropsies have shown that the diminution in the circumference of the bronchial tube was due to constrict-

tion on the part by a cicatrix, while in the majority of cases the stenosis is caused by a pathological hypertrophy of the submucosa and mucosa and is very readily relieved.

In regard to the fumigations of mercury, they may be good. I am perfectly well satisfied in using the old way of using the iodide of potassium and mercury and my results have been so speedy that I really think it is a little bit out of the way to fumigate these poor children. They have just suffered enough. I usually give iodide of potassium to children per rectum, and I can give it much better in that way in watery solution than by the mouth. It is absorbed just as well and the doses are no larger than when used by the mouth, and the stomach digestion is not interfered with.

Quite a large number of cases of syphilitic stenosis in bronchial tubes and especially of the bifurcation of the trachea have been described in adults. I did not refer to them. There are to my knowledge only about six cases of broncho-stenosis of syphilitic origin in children in literature.

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Clinical Memoranda.

A CASE OF ALOPECIA OF THE ENTIRE SCALP.

BY E. MANSEL SYMPSON, M.A., M.B., B.C. Cantab.,
M.R.C.S., England.

Surgeon to the Lincoln County Hospital, Lincoln, England.

MARY E. M., aged ten, has been attending the out-patient department for some months under my late father's and latterly under my own care. Her history is as follows:

She was a long time in getting a proper growth of hair which did not occur till she was twenty months old. Four years ago she had measles. Three years ago her hair, which was very fine and silky and quite long, began to get white (some photographs taken at this period confirm this account completely) and then gradually it fell off, not only from her scalp but she lost her eyelashes and eyebrows.

There is no history of ringworm nor of headaches, nor are there any signs of congenital syphilis.

Family history.—Her maternal grandfather was bald at thirty; her brother and sister each have good heads of dark hair, as has her father. Her mother has abundance of brown hair.

Present condition.—With the exception of two hairs, the whole of the scalp is absolutely destitute of hair. The skin is smooth to the touch and is now somewhat redder than the skin of her forehead, owing to the application of stimulating lotions. The skin looks perfectly healthy, and with a lens, tiny dark specks (hair follicles) can be seen all over the scalp.

The two hairs mentioned before are about one-half an inch long, white, of very fine quality. They were situated over the left frontal eminence. On microscopical examination the hairs show exactly the characters described by the late Mr. George Nayler* (illustrated in his first edition) one having the bulb gradually attenuated and reduced to a fine point, the other ends in a more stunted fashion and has a number of projections like the bristles of a brush. These appearances Mr. Nayler notes during

* Diseases of the skin, 1866, p. 178-79.

the decline of the complaint, otherwise, as far as the structure of these hairs, it is perfectly healthy.

The scalp is quite sensitive all over, and has no appearance of scurf or pityriasis. There seems to be no evidence now of any parasite, scrapings of the epithelium giving a negative result.

As will be seen from the photograph (excellently taken



by Mr. Hadley, of Lincoln) her eyebrows and eyelashes are present. They were altogether absent for a year. They are very white in color, and (as was the case with the two hairs examined) very fine.

On the forehead there is abundance of hair as there is also all over the body, except on the front of the legs, where the skin is smooth and rather mottled.

Treatment.—She improved some months ago under a lotion of pilocarpin, but relapsed when it was discontinued.

At present she is taking one-twentieth of a grain of nitrate of pilocarpin internally three times a day, and a lotion or ointment of tincture of cantharides, oil of rosemary, and aromatic spirit of ammonia, is rubbed vigorously into the scalp night and morning.

The case is interesting for several reasons. Although the history is somewhat defective, still the almost complete affection of the head and face removes it from the possibility of being due to ringworm. Again, that it is not universal keeps it out of the class of universal alopecia. If it be not due directly to ringworm, that fact and the age of the patient prevent it being of the class of alopecia which is supposed to be the indirect outcrop of a field on which ringworm has revelled in the past; for these cases occur at a later date, more removed in time from the antecedent tinea.

The outlook is favorable, as the eyelashes and eyebrows have come again.

SUPRA-RENAL HÆMORRHAGE.

BY HENRY E. TULEY, M.D.,

Senior Assistant Resident Physician Sloane Maternity Hospital, New York City.

THROUGH the courtesy of Dr. E. A. Tucker, resident physician of Sloane Maternity Hospital, I am enabled to report the following case which occurred under our observation in this institution.

The notes upon the pathological specimen are largely made up from an examination made of it by Dr. L. Emmett Holt.

Y., male; second child of healthy, well-preserved mother; twenty-seven years old. Previous child died of pneumonia at thirteen months of age. Pregnancy progressed normally throughout. No history of any injury having been received. Confined 12.14 A.M., September 14, 1892. Labor progressed normally, and ended without assistance, first stage lasting one hour and twenty-five minutes, second stage only fifty-two minutes. Chlo-

roform anæsthesia for three minutes, just before birth of head. Fœtal heart became slowed shortly before birth, slight asphyxia was present, respiration being stimulated by rubbing of chest. Cord bled a little and was retied soon after birth; temperature at birth 99.6° . Child failed rapidly, did not nurse well at any time, and lost from a birth weight of eight pounds ten ounces, to eight pounds three ounces in four days. Mild jaundice was noticed on third day, which gradually became general and more marked; on day of death child was of deepest greenish-yellow hue extending even to palms of hands and soles of feet. Temperature was 101.4° and 101° on third day, and 101° on morning of fourth day. Temperature shortly before death 99.6° . At no time was it sub-normal. On evening of fourth day child had an anxious, pinched expression, face drawn, lips and mouth dry. Respiration seventy-two, sighing and labored; pulse weak, varying from 180 to 200 and over. Extremities cold; abdomen noticed quite tense, but no particular notice was paid to it as it was thought to be merely an ante-mortem distention.

Hot bags to extremities and enemata of whiskey failed to relieve it and child died at 8.30 P.M., September 18th. Autopsy thirty-eight hours after death. Child fairly well nourished, skin of a pale, waxy color, abdomen quite tense, percussion note flat.

Brain.—Not examined.

Lungs.—Extremely pale and almost bloodless, surface of a yellowish color. No blood flows from cut section; looks fatty; some lobules show vesicular emphysema. Lung crepitates imperfectly and is firm and heavy. No blood in pleural cavity.

Heart.—Pale yellow in color; contracted; about two drachms of straw-colored fluid in pericardium.

On opening abdomen considerable fluid blood escaped, probably about one ounce, which could not be caught. Upon free incision more blood escaped and several large blood-clots were found, the largest the size of a fist filling left iliac region. Eight-and-one-half ounces of fluid and clotted blood were caught and weighed.

Stomach.—Contracted, with little fluid contents.

Intestines.—Small, almost empty; no blood found.

Liver.—Displaced upward by right kidney. Markedly jaundiced on surface and on section of normal size, and covered on anterior surface by thin clot.

Spleen.—Normal size and color.

Ureters.—Normal size and permeable.

Kidneys.—Left, normal except a little pale. Right, when cut down upon appeared to be a large mass of clots filling right side of abdomen and pressing liver upward. On section the hæmorrhage at first appeared to be in the pelvis, the kidney substance being compressed, but on closer examination the right adrenal proved to be distended to nearly size of goose egg with partly fluid blood and partly clots, the kidney being much compressed but normal in appearance.

This blood in suprarenal capsule had ruptured in cellular tissue surrounding kidney and the kidney itself was imbedded in a mass of clots. The post-peritoneal cellular tissue was likewise infiltrated with blood very extensively. The rupture in post-peritoneal tissue occurred from the apex of the hæmorrhage sac and later hæmorrhage became general in peritoneal cavity.

At no time was the condition present suspected or thought of, as there were no symptoms observed which would suggest a hæmorrhage.

Had the delivery been an instrumental one, the hæmorrhage might have been attributed to the forceps, perhaps from some interference with the circulation by pressure upon the head, but the labor was perfectly normal and only of two hours and twenty-nine minutes duration, without a protracted or tedious second stage. Whether the hæmorrhage began before or during labor, or after birth is unknown.

Von Ritter (*Fahrh. f. Kinderheil.*, v. 456) reports one hundred and ninety cases of hæmorrhage in the new-born, but not one case of suprarenal hæmorrhage is mentioned. I have been unable to find but one case of suprarenal hæmorrhage occurring without a coincident hæmorrhage in other organs, which is reported in this country; that of Milroy (*Amer. Journ. Obs.*, July, 1884). A child, male; died fourteen hours after birth, with no symptoms but vomiting and rapid failure. The autopsy revealed lesions in right kidney almost identical with one just reported.

DORSAL SPONDYLITIS; A REPORT OF SIX CASES.

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THE following cases are reported to illustrate the varying phases under which Pott's disease in the dorsal region of the spine presents, and the course which each may be expected to follow.

CASE I.—Male, three years old, began to hold head stiffly in November, 1885, and soon to throw head backward; there was no complaint of pain, and no loss of appetite, or special restlessness in sleep. Now, at the end of eight months, he holds the head stiffly, and thrown far back; both sterno-mastoid muscles are equally prominent; there is no kyphosis anywhere; any attempt at passive movement of the head causes crying; there is more passive lateral and rotary motion possible than forward bending. The diagnosis was cervical spondylitis in the lower region. Treatment consisted in traction on the head by weight and pulley in bed for eight months. The head returned to its normal position, and the muscular spasm limiting the motions of the neck subsided, and the patient was free from pain, and ate and slept well. At that time paraplegia appeared in the lower extremities, and continued without relaxation to the time of his death, three-and-a-half years from the commencement of the disease. Soon after the paraplegia appeared, a slight kyphosis was made out at the upper dorsal spine, and this continued to increase slowly. He took for many months large doses of iodide of potash, and was frequently burned over the seat of disease with the thermo-cautery without the slightest relief to the paraplegic symptoms.

Autopsy on March 12, 1889. Marked kyphosis in the upper dorsal region without any sharp angle. Marked prominence in the lower sternal region. Cheesy bronchial glands. Lungs adherent and congested. Heart, liver, spleen, pancreas, kidneys, and bladder normal. Brain large, convolutions flattened; pia mater contains numerous miliary tubercles; much serum escapes upon

removing the brain; lateral ventricles moderately dilated. Spine: In front of the vertebræ at point of curvature is a large, cheesy mass, and a mass that is puruloid. The vertebral bodies are carious, and spinal canal behind the cord filled with cheesy and calcareous matter. There is marked shrinking and softening of the cord opposite the bend; ascending and descending degeneration well marked.

CASE II.—Female, fourteen years old, had a fall in 1877, the symptoms of which passed off and were soon forgotten. In 1881, she had another fall, followed by pain in the dorsal region, and soon curvature was noticed. She remained in fairly good condition for ten months, when suddenly she found herself paraplegic. She had been sitting in a chair, and on attempting to rise and walk, found that she had completely lost control of the lower extremities. Now, four weeks later, she presents a rounded kyphosis of the fifth, sixth and seventh dorsal vertebræ. There is very slight control over the muscles of the thighs, and none over the legs. She has slight appreciation of sensation on deep pressure over the lower extremities, becoming more and more perfect from below upward to the level of the umbilicus where it is normal. At times she feels “pins and needles.” Has had, but has not now, incontinence of urine.

She remained in bed without mechanical treatment for four years. She had large doses of iodide of potassium for many months without any apparent effect. Gradually in the course of years, the sensation returned, and there was a slight gain in muscular control. In March, 1886, she passed from under my control. I next saw her three years later. She had remained in bed most of the time, but had been up in a wheeled-chair occasionally. The kyphosis had greatly increased, and occupied the whole upper two-thirds of the dorsal region; the muscular control over the lower extremities had greatly improved, and exaggeration of the tendon reflexes had diminished. A modified Taylor spinal brace with chin-piece, was fitted and applied, and she was allowed to get up daily in the wheel-chair.

For two-and-a-half years after this there was no noticeable change; then she began to gain more control of the lower extremities, and now at the end of six months more, eight-and-a-half years from the coming on of the paraplegia, she is able to walk with support.

CASE III.—Female, four years old, had been noticed by parents to be walking crooked for three or four weeks when examined on April 8, 1889. There has been no complaint of pain, and appetite and sleep have been normal. The right shoulder is higher than the left; the right scapula is tilted forward, with prominent lower angle, and is farther from the spine than the left; there is a mid-dorsal curvature to the right with rotation, and a lumbar curvature to the left without rotation; the dorsal curve is quite rigid, and cannot be corrected by posture; the lumbar curve is corrected by posture.

Diagnosis: scoliosis. Exercises given three times a week. At the end of eight weeks she has grown noticeably worse; a brace was applied with light tempered steel strips following the outline of the back on either side of the line of spinous processes. For two weeks she grew no worse; then the exercises were discontinued, and she was instructed to wear the brace night and day. At the end of five months the lateral curvature and rotation had entirely disappeared, and she easily stood erect without discomfort, but the spinous process of the tenth dorsal vertebræ form a distinct kyphosis, and the diagnosis is at last made clear. Eighteen months from the time of the application of the brace, the patient was cured without other deformity than a slight projection of the spinous process of the tenth dorsal vertebræ, and could bend forward and touch toes without pain or weakness. The brace was removed and at the end of eight months when last examined there had been no return of symptoms.

CASE IV.—Male; twenty-five years old; examined April 19, 1888. About eighteen months ago, after several falls from a bicycle, began to have lameness in the small of the back, and has grown gradually worse. Four months ago, began to have pain down the course of the sciatic nerves, and a month later there was some paresis of the bladder and left leg, with numbness in the scrotum and penis. The sciatica was aggravated by any jar or sudden movement. At the present time there is no paresis, and the numbness has passed off. He walks with great care, and cannot go more than a hundred yards without resting; he sits and rises with the greatest difficulty, and cannot ride in a carriage or a tram-car. There is a distinct, though not large, rounded kyphosis at the eighth to the twelfth dorsal vertebræ inclusive, with considerable lateral curvature to the right. The spine is held

rigid to all bending in this region, and for some distance above and below, any attempted backward and side bending causes pain in the right side. A modified Taylor brace was applied, and the patient directed to rest as much as possible.

At the end of four months the pain had passed entirely away, and the patient was able to go to his business, and walk long distances without any discomfort. At the end of twenty-one months, from the application of the brace, the patient removed it on his own responsibility on the occasion of his marriage. And now after eighteen months there have been no return of symptoms, the deformity is scarcely to be made out, and the extent of flexion in all directions practically normal, and there is no pain or weakness.

CASE V.—Male; six years old; examined May 19, 1890. Mother died of "consumption of the bowels" nine months ago; father's history unknown. At about the time of the mother's death, a slight deformity was noticed, and he was taken to a public charity where a laced plaster-jacket was well and skilfully applied, and he has since been under that treatment. He has not had any pain at any time. The deformity is said to have steadily increased, and the kyphosis is now very marked, and includes the eighth to the twelfth dorsal vertebræ inclusive; there is a lateral curvature to the right; and there are pressure sores over the tips of the spinous processes of the eighth, ninth and tenth dorsal vertebræ.

CASE VI.—Male; two years old; examined October 18, 1883. The child has been recently examined successively by the three most renowned orthopædic surgeons in America, and each, without the knowledge of the diagnosis of the other, diagnosticated Pott's disease at the seventh dorsal vertebræ. For four months has had abdominal pain, and been restless and crying in sleep. The father is a periodic drunkard; one paternal uncle has spondylitis, and another died of hip disease; the mother is healthy, but there is consumption on both sides of the family. The patient had whooping cough before the pain commenced. There is a slight prominence of the eleventh and twelfth dorsal vertebræ to touch, but not sight; the spine is held rigid to passive bending, and there is slight psoas resistance on the left side. A modified Taylor brace was applied with pressure pads from ninth

dorsal to first lumbar vertebræ. The spinous processes between the pad plates became somewhat more prominent as time went on, then gradually less prominent, and the psoas contraction passed off. After two-and-a-half years, hip disease developed, and the spinal brace was removed. Now, five years after the removal of the spinal brace, no trace of the spinal disease can be found; there is no deformity, and no restriction to normal motion in all directions.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, October 20, 1892.

The President, Alfred L. Loomis, M.D., in the Chair.

THE meeting was held under the auspices of the surgical section, Dr. Joseph D. Bryant, chairman. The subject for discussion was "Intubation versus Tracheotomy for Acute Laryngeal Stenosis in Children. To what Extent, if at all, has Intubation Supplanted Tracheotomy."

Dr. Joseph O'Dwyer read the first paper. It would have been very easy, he said, to prepare a long paper upon the subject, but it was difficult to prepare a short one. By acute stenosis of the larynx was meant the stenosis which occurred in fibrinous, diphtheritic, or membranous croup. This disease still continued to be one of the most fatal of early life. Although the dyspnoea was relieved by intubation, death yet was liable to result from several causes, as catarrhal pneumonia, nephritis, paralysis, extension of membrane.

Without attempting to answer all charges made against intubation, depending largely upon want of skill on the part of the operator, he confined his remarks in this line to criticisms which had been recently made by Dr. Lovett, who recited the experience with intubation at the Boston City Hospital. The percentage of recoveries there from this operation had been about twenty per

cent., whereas tracheotomy had given about twenty-eight per cent. The numerous accidents which had been encountered in intubation had evidently been due to the fact that the operation had been done by a number of men who came on duty in turn and had not previously practiced to any extent, he believed, on the cadaver. Most of the accidents had been of a nature which a skilled operator using good instruments would not have encountered. One of the gravest objections which had been offered to intubation was the difficulty of subsequent feeding, but this difficulty as a rule was slight unless through unskilful hands the soft parts had been injured during attempts at passing the tube. When the operation was really called for the patient was getting but little air, and even a short interruption of this would be dangerous. One should have previously practiced on different cadavers before undertaking intubation. No great amount of surgical skill was required to do tracheotomy, but subsequent intelligent nursing was almost an absolute necessity and could be dispensed with in intubation. On the one hand, therefore, trained nurses were called for, on the other, a trained operator.

As contrasted with the low number of recoveries after intubation at the Boston City Hospital, he said that at the Willard Parker Hospital thirty-eight per cent. had recovered, and indeed he knew of no individual results which were as low as at the Boston City Hospital, or twenty per cent.

Age was an important factor as influencing the prognosis after intubation or tracheotomy. In his experience, intubation had scarcely saved a life during the first year, but its results were far superior from the first year to three years-and-a-half; after the latter date age did not play an important rôle. In conclusion, Dr. O'Dwyer thought that intubation accomplished practically all that was accomplished by tracheotomy without being invested by any of the unpleasant features of the latter operation.

Dr. Lewis S. Pilcher, of Brooklyn, emphasized the importance of looking upon all cases of exudative laryngitis

as diphtheritic. Granting that both intubation and tracheotomy would remove the laryngeal stenosis, which was best adapted to assist the system in its struggle against the general infection? The answer to this question involved three points—blood aeration, local cleansing and antisepsis, and general nutrition.

Both met the first point, but intubation did not meet so well the emergency of stenosis occurring further down, and was liable also to push membrane down and thus give rise to further stenosis. Theoretically it might be said secondary tracheotomy would meet these objections, but practically it would prove too late. An advantage of tracheotomy was that it permitted of the air being warmed and medicated, also of removing obstructing exudate coming up the trachea. Moreover, it permitted of nutrition being carried on perfectly. Whether these apparent advantages of tracheotomy would prove advantages in practice could not yet be determined fully on account of the different circumstances under which the two procedures were resorted to and the fact that the severity of cases differed according to the epidemic. Tracheotomy had, however, given better results than intubation in the hands of Dr. O'Dwyer, the difference being about four per cent. in favor of the former. Dr. Pilcher's own results from tracheotomy had been one-third recoveries in about sixty-six cases during seventeen years, practice. But intubation had been performed by one of his neighbors over twice this number of times in only four years, although with not quite so large a percentage of recoveries—twenty-nine per cent. plus. This showed that intubation was supplanting tracheotomy to a considerable extent, and also that it was making a field for itself. He believed tracheotomy would stand its own if pavilions were established at many points in the cities where diphtheritic cases could be readily transferred and operated upon by the surgeons connected with the hospitals of which the pavilions were branches.

Dr. George W. Gay, of Boston, gave some later statistics from the Boston City Hospital than those of Dr.

Lovett, although the results had been about the same, or twenty per cent. recoveries from intubation and twenty-eight per cent. from tracheotomy in round numbers. In the majority of cases the result after intubation depended upon one of three conditions, namely, laryngeal obstruction, bronchial croup, or septicæmia. The type of the disease, more than anything else, determined the result after operation. In very many instances the operation accomplished its purpose, relieved dyspnœa, but the patient succumbed to sepsis, etc. Where dyspnœa after intubation was due to extension of the morbid process, or sepsis, secondary tracheotomy offered little hope. In the Boston City Hospital only seven patients recovered out of fifty-eight operations for secondary tracheotomy. The author thought that in the majority of cases under seven years intubation was preferable to tracheotomy.

Dr. F. E. Waxham, of Chicago, sent the results of his recent cases treated by intubation. In all there had been 421, with 146 recoveries, or 34.67 per cent. In his first 100 cases there were 27 recoveries; in the second, 34 recoveries; in the third, 40 recoveries; in the last, 21.7 recoveries.

Dr. A. Jacobi said that when this subject was brought before the Academy four or five years ago, he indorsed intubation for several reasons. He had been about the first to introduce tracheotomy into this country, and had performed it probably six or seven hundred times. In many cases it was not permitted until the child was practically moribund. For this reason he endorsed intubation. Moreover, tracheotomy at times led to erysipelas or infection at the wound, and also sometimes necessitated leaving the tube in a long period.

Dr. Francis Huber sent a note, expressing preference as a rule for primary intubation. The mortality after either operation varied according to the epidemic, or according to conditions with which the operation itself might have little or nothing to do. The difficulties of operating pertained not alone to intubation, but in babies especially might also be present in tracheotomy. What-

ever might be the comparative results in older children, certainly under two-years-and-a-half intubation was ahead. He incidentally alluded to the treatment by bichloride, recommended by Dr. Jacobi and which he strongly endorsed.

Dr. Berg had performed both intubation and tracheotomy a number of times. Intubation would relieve dyspnoea, but after twenty-four hours the picture often changed. While honoring Dr. O'Dwyer, he must say that at present he looked upon intubation as involving two most serious objections: 1. Interference with feeding and nutrition. 2. Interference with the administration of bichloride of mercury as recommended by Dr. Jacobi, as it would act upon the tube. He had found bichloride a remarkably effective remedy in diphtheria.

Dr. Northrup related observations made in Europe the past summer which showed that some men knew not how to make or select tubes, nor how to introduce them, and this would account for their unfavorable results. Difficulty with feeding was almost always due to faulty introduction of the tube, resulting in injury to the parts.

Dr. Johnson, of Paterson, had not found membrane in the tube to account for its being coughed up when this accident had occurred, although it might have been the cause and become lost to view. Nor did he think dyspnoea the usual cause of the change of the picture after twenty-four hours following the introduction of the tube. As to the use of bichloride being an objection to intubation, he might remark that Dr. Jacobi, who introduced the bichloride treatment, also recommended intubation.

Another gentleman said that in the Willard Parker Hospital the tube did not interfere apparently with feeding, and there also bichloride irrigation was employed and did not injure the tube.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Kellogg, E. W., (Milwaukee, Wis.): *Oleum Terebinthinæ as a Remedy for Croup, with a Report of Fifteen Cases, with Discussion.* (*Med. and Surg. Rep.*, Phila., 1892, lxvii 57.)

Of the fifteen cases, eight recovered and seven died. In all of the eight recoveries croup was the sequel of diphtheria of the pharynx. Of the seven fatal cases two were not given the treatment, in two others there was no visible diphtheritic membrane, in the three remaining fatal cases, croup was the sequel of diphtheria of the pharynx.

The turpentine was given in drachm doses every one, two or four hours, according to circumstances. In but one case was there any disagreeable effect from the remedy, and that was a temporary strangury when fifteen drachms were given in twenty-four hours to a boy four years of age. In all cases it was given in milk. In no case was it rejected after it was once past the epiglottis. It must be remembered that they were cases of a disease of which ninety per cent. die.

Duncan, J. T., (Toronto): *Whooping Cough: Treatment by one of the Newer Methods* (*Canad. Pract.*, Toronto, 1892, xvii 323.)

Five cases of whooping cough treated with bromoform are reported. The results may be thus stated: (1) Bromoform in proper doses is a perfectly harmless remedy. (2) The attacks diminish in number and severity. (3) The first paroxysmal vomiting disappears in two or three days. (4) Nasal and other forms of hæmorrhage soon disappear. (5) It acts beneficially in complications, largely by giving affected organs, *e. g.* lungs, a chance to rest. (6) It undoubtedly shortens the duration of the attack.

Ross, Alice McLean, (Swatow, China): *Treatment of Summer Diarrhœa in Children* (*Med. and Surg. Rep.*, Phila., 1892, lxvi 1004.)

At the onset of the bowel trouble give ʒiiss of castor oil to clear out the bowels and after every movement follow-

ing that caused by the oil, give a teaspoonful of the following mixture :

℞ Bism. subnit.		gr. cccxx.
Ac. carbolic	}	
Spts menth. pip.		
Tr. capsici.		
Spt. camphor.		
Syr. simplex.		
Aq. cinnamon.		āā. mx. m
		āā. qs. ad ℥viii.

If an antipyretic is necessary use sponge baths, acetanilid or aconite; and for exhaustion use spirit. frumenti. Give every morning and evening, with soft rubber catheter, a high irrigation of starch-water, warm, to which is added ℥ss soda bicarb. to the pint. A careful and restricted diet with plain cool boiled water is important. Plenty of fresh air is desirable and a cool even temperature is best.

Jacques, (Marseilles): Diphtheria from the Point of View of Treatment. (*Mal. de l'Enf.*, Paris, 1892, x., 123.)

The treatment recommended, for example, for a child of seven or eight years at which age or even younger they learn quickly to use a gargle, is as follows: After isolation of the patient in a room with as little furniture as possible, two gargles are prescribed; the one of perchloride of iron the more important, the other of carbolic acid plus a solution of boric acid.

The perchloride of iron is used in the following manner:

Liquid perchloride of iron	25 gm.
Glycerine	
Distilled water	āā. 50 gm.

A teaspoonful in a quarter of a glass of boiled water. The patient to take two or three mouthfuls every two hours and to gargle as deeply as possible. As this liquid is very astringent and leaves in the mouth a disagreeable, styptic sensation it is necessary to use immediately after it a thorough washing of the throat with a luke-warm solution of boric acid three per cent. An ordinary irrigator is the most convenient for this pharyngeal douche. The tube should be fully opened as in this way it removes more easily the débris which the gargle of perchloride detaches in abundance. The gargle of carbolic acid alternates with the preceding.

The formula is :

Carbolic acid	2 gm.
Glycerine	50 gm.
Distilled water	150 gm.

This mixture is used pure every two hours and is not followed by lavage. Food should be given between or immediately after the gargling to allow rest to the child. After the administration of milk it is well to wash the mouth carefully since this liquid supplies a good medium for the culture of the bacilli of Loeffler. A generous wine with water or still better sometimes water with rum or cognac is to be recommended; alcohol to the extent of forty to fifty grammes a day. The douche should be used for the nasal cavities if it becomes necessary. For milder cases the gargles and the lavage may be given at longer intervals. In severe cases the iron may be used in stronger solutions. In children too young to be taught to use the gargle, the boric acid irrigation should be used every hour; and every four hours, just before the irrigation the powder of the perchloride should be applied to the false membranes. Antiseptics in the forms of vapors, particularly when the disease affects the nasal cavities or extends to the bronchi, are to be employed.

II.—MEDICINE.

Meyer, P. and Oppenheim, H.: A Case of Convulsions, Extraordinary on Account of Its Unusual Symptoms. (*Jahr. f. Kinderh.*, Leipzig, 1892, xxxiii., 350.)

The patient was a four-year-old boy, who gave symptoms of a cerebro-spinal disease, probably congenital. Convulsive attacks attended by unusual phenomena were observed. The first began at the age of three months. The phenomena were of a vaso-motor and secretory nature which suggested a relation of these attacks to epilepsy, hemicrania, a traumatic neurosis or hysteria. Yet the case could not be brought into the category of either of these diseases. In one attack the child cried loudly on account of pains in places in the right half of the body. A redness, sharply defined by the middle line of this half of the body, appeared. The right pupil was fully dilated and staring. Free sensorium. Gradually the pains and the reddening disappeared. The attack lasted about a minute. In another attack the boy cried suddenly for pain in the region of the anus. Immediately the muscles of the leg were thrown into a state of flexion. The region about the anus appeared purple-red, penis state of extreme erection, glans penis cyanotic. The face and scalp were reddened. Involuntary passing

of urine, pupil reaction could not be tested. Sensorium free, pulse quickened and small. The attack lasted a half minute. After the attack the patient was as bright as before. In a third attack, severe pain in the left cheek, then wide dilatation of the left pupil which did not respond to light. A sharply defined reddening, reaching to the median line of the left half of head and face. Profuse weeping from the left eye. Consciousness free. The reddening lasted after the attack, disappearing in six to eight minutes. The dilatation of the pupil and fixedness outlasted the attack but a short time. Reflexes of the soles of the feet increased on both sides.

Prioleau, Leonce (Brives): Disturbances of Nutrition and Sensibility of the Cornea in Meningeal Tuberculosis. (*Mal. de l'Enf.*, Paris, 1892, x., 212.)

Besides the more usual signs from the eyes of irregularity of the pupils, strabismus, oscillations of the pupils, etc., and of the sense of sight of diplopia, hemiopia, amblyopia, the author has sometimes found disturbances of nutrition and sensibility which increase the number of diagnostic signs and announce the approach of a fatal termination. The trophic disturbances which have been observed are of two kinds: 1st. The loss of lustre or dimming with a very slight opalescence of the cornea. 2d. The diminution of the intraocular tension. The first was found twice in seventeen cases. The opalescence followed by about one day the dimness of the cornea. It appeared in the third stage of coma. The sign preceded death by three to five days. The diminution of intraocular tension was observed in one of the two cases cited. It was shown by the dull aspect of the eye, but better by the touch. Disturbances of sensibility were found four times in the seventeen observations. They were found in the third period of the tubercular meningitis, though in one case recognized at the end of the second period. Sensibility was more or less abolished to the touch and to pricking as well. There was little or no reflex act of the lids on touching the ocular conjunctiva, or more particularly the cornea. This, it may be said, was several days before the agony and death.

Bobulescu, Octave: Incontinence of Urine Due to Hypertrophy of the Spleen. (*Mal. de l'Enf.*, Paris, 1892, x., 225.)

Two cases in which hypertrophied spleens produced mechanically incontinence of urine. One was a child of

four years, the other of five. All other causes could be excluded. In both, the incontinence was chiefly when the children ran or jumped. Both had suffered from severe forms of intermittent fever, and both spleens were enormously enlarged.

Veasey, C. A. (Philadelphia): Ophthalmia Neonatorum. (*Med. and Surg. Rep.*, Phila., 1892, lxvii., 6.)

Recapitulation:

1. Before making a vaginal examination always cleanse the hands thoroughly, taking care not to forget the finger nails.
2. During labor assist the eyes to pass rapidly over the perinæum.
3. Always cleanse the eyes of the infant *immediately* after birth.
4. Do not use the same water for bathing the face and eyes with which the body has been bathed, and always use different sponges or pieces of flannel.
5. Never employ one towel for two persons.
6. Be careful not to allow any soap or bay rum to enter the eyes.
7. Keep the light in the lying-in chamber very dim.
8. Always burn *immediately* everything that has come in contact with the ophthalmic discharge.
9. Instruct the laity of the great danger of ocular affections of the new-born, and the necessity of consulting a physician as soon as they are discovered.
10. Always use the Crédé, Hégar-Korhn, or some such method of cleansing and stimulating the eyes of a new-born infant.

Moussous, A.: Remarks on Typhoid Fever in Children. (*Arch. Clin.*, Bordeaux, 1892, iv., 145.)

A résumé of fifty cases observed in the years 1888 to 1892 in children under fifteen years of age. The mortality was 6 per cent. The less fatal character of the disease in children is believed not to be due to the less vigorous typhoid infection, but to the better powers of defence. In support of this view is the fact that the disease is very severe when it attacks an infant of less than two years. As is well known, the digestive apparatus of the infant has not acquired its full functions. The development of the lymph organs in children favors the phenomena of phagocytosis; the liver possesses its regular functions. It is rare that it is affected by the inflamma-

tory processes or degenerations which occur in later life. The kidneys in the same way are generally healthy, and from the side of the heart and vascular system there is less tendency to stasis on the part of the kidneys. Experiments were made in four cases, in which the treatment consisted solely of small amounts of quinine, of the toxicity of the urine. It was found normal or increased at the height of the fever. There was sometimes a considerable increase at the time of defervescence, or in the days immediately following. After several days of apyrexia it returned to the normal, sometimes even less than normal.

During the convalescence a return of the fever showed a momentary increase. The quick disappearance of extraordinary toxic material from the urine was the same as has been found when the treatment by cold baths has been followed.

Tooth, Howard: Case of Enteric Fever, with Pulmonary Complications, followed by Laryngeal Diphtheria; Tracheotomy; Death; Necropsy. (*Lancet*, 1892, i., 746.)

The patient was a boy, aged five. The aspect of the patient, character of the temperature chart, enlargement of the spleen, the papular exanthem and characteristic diarrhoea rendered the diagnosis of typhoid fever almost certain during life, while the ulceration of the cæcum and enlargement of Peyer's patches and of the mesenteric glands (found post-mortem) rendered it certain. The diagnosis of diphtheria could not be made with certainty during life, though the albuminous urine and the enlargement of the glands in the neck, which came on after tracheotomy, rendered it probable. The membrane found post-mortem was indistinguishable from that of diphtheritic laryngitis.

The child was admitted on December 21, 1891, and on January 5, 1892, developed laryngeal cough, stridor and aphonia. Two days later tracheotomy was done with great relief, but the child died on the 11th. At the post-mortem examination, the larynx and trachea were found to be lined with diphtheritic membrane. The right lung was completely consolidated with old broncho-pneumonia, the left being collapsed and somewhat congested. There was ulceration in the cæcum and enlargement of Peyer's patches and of mesenteric glands. Spleen enlarged to about twice the natural size.

Harvey, Alfred: A Case of Diabetes Insipidus Permanently Cured by an Inter-Current Attack of Measles. (*Birmingham Med. Review*, 1892, xxxi., 166.)

H. F., a female, aged three years and two months, fell down stairs on April 15, 1890. The fall was followed by vomiting and by fright. It was soon noticed that the urine was increased in quantity, and that there was an increase in frequency of micturition. When first seen, the urine was colorless, sp. gr. 1.002; and free from sugar or albumen. On measurement the quantity passed in twenty-four hours was found to be fourteen pints. Under the use of ergot, Parish's syrup, cod-liver oil, a nourishing diet and fresh air, the quantity of urine diminished steadily to one hundred and thirty-seven ounces, on May 3d, but from that date there was no further diminution until the month of December. Between these dates the highest quantity passed in one day was two hundred and sixty ounces, and the daily average about one hundred and seventy ounces.

On December 3d, H. F. showed symptoms of measles. On that day the urine diminished to forty-seven ounces, and the two following days it further diminished to fifteen and eleven. The rash appeared on December 6th, when eight ounces of urine were passed, with sp. gr. 1.026, and containing albumen. The urine continued to diminish until December 10th, when only one-and-a-half ounces were excreted; but the next day the amount was fifteen ounces, and it was free from albumen; and from that time it has been normal in quantity and quality.

McCaw: Diarrhœa in Childhood. (*Brit. Med. Journ.*, 1892, ii., 133.)

The subject was discussed under three heads, leaving out the specific diarrhœa of tubercle of the bowels, typhoid fever, etc., etc.: 1. Simple non-inflammatory; 2. Inflammatory diarrhœa; 3. Cholera infantum. In the treatment of (1) he was strongly in favor of sterilizing all milk. He approved of the usual dose of castor-oil or a powder of rhubarb and soda, followed by a carminative and sedative the following day. These measures, together with diluting the sterilized milk with barley water he found sufficient in the first variety. In the second variety he advocated the abandonment of milk in every shape and substituting for it whey, whey and barley water, whey and cream, or barley water and cream; in the same way one of the children's prepared foods might be tried, or the condensed Swiss milk. Even these sometimes

failed and must be replaced by veal or mutton soup, raw meat pounded or raw meat juice. As to the use of drugs, he relied on the use of a grain of grey powder with a grain of Dover's and two of soda; the carminative and sedative before mentioned being given during the day, with one of the powders at night. He had seen much benefit follow a small starch enema at bed-time, with four grains of laudanum added. Warmth to the abdomen he believed to be both grateful and serviceable. In very extreme cases he would be disposed to give the American plan of flushing the colon and rectum with a warm saline solution (3i. of common salt to the pint) a trial, and especially before administering the enema. In the treatment of cholera infantum he thought most reliance should be placed in severe cases on the hypodermic injection of morphine or atropine. More use might be made of the hypodermic needle to administer nourishment and stimulants. Dr. Hankin, of Belfast, would attack the course of the vagus nerve in the neck in these cases with blistering fluid, and the method should not be lost sight of. The injection of a saline solution with the hypodermic needle (one per cent. strength) has the support of Hensch.

Tidey, Stuart, (Switzerland): Hepatic Cirrhosis in Children. (*Brit. Med. Journ.*, 1892, ii., 125.)

The patient was a tall, emaciated boy, aged eleven. The chief points of interest about the case were the following: 1. The sudden incidence of symptoms pointing to grave functional disease of the liver in a boy who, without being an invalid, had long been ailing and emaciated. 2. The sudden occurrence of ascites without anasarca in a case of apparently non-obstructive jaundice. This feature of the case induced me to alter my diagnosis of the case from that of quasi-acute yellow atrophy of the liver to that of obstructive jaundice due to enlarged glands in the portal fissure. The necropsy showed the jaundice to be due to acute symptoms following on chronic atrophy—that is, on cirrhosis of the liver—and the ascites to be due to enlarged glands in the portal fissure, one enlarged gland in front and one behind the portal vein at the same level effectually obstructing the flow of blood through it. 3. Absence of fever. 4. Absence of apparent cause of the disease, and death of brother at the same age with similar symptoms.

Stedman, Arthur, (Leatherhead): Incubation Period of Mumps. (*Brit. Med. Journ.*, 1892, ii., 18.)

In October, 1887, there was an epidemic of mumps in St. John's Foundation Schools. The first case occurred on October 4th; one occurred on October 18th, or fourteen days after; one on October 19th, or fifteen days after; five on October 20th, or sixteen days after; four on October 21st, or seventeen days after; seven on October 22d, or eighteen days after; four on the next day; one on the next, and two on the next day, showing that the larger number of failures are about the seventeenth and eighteenth day, while the disease may be developed as early as the fourteenth day, and as late as the twenty-first.

Hicgnet: A Rare Affection of the Crypts of the Tonsil. (*Rev. Intern. d. Rhin., Otol. et Laryng.*, Paris, 1892, May, 66.)

A young girl about twelve years of age suffered for more than a month with moderate pain and sensibility on swallowing. Scattered over the two tonsils were white points resembling a pultaceous material, from these projected filaments giving the appearance of hairs of a brush fixed in the crypts. On removal of some of these horny filaments they were found to be elastic like rather stiff hairs. A month was required to remove them all. Discussion: M. Monee believed the case to be one of mycosis of the tonsil. M. Charazac was of the opinion that the microscope would have shown the mycelium of the mushroom. M. Sarel said it was probable that these hairs are composed of a series of tubes of mycelium.

Gaston, Paul and Renard, Leopold: Infectious Broncho-Pneumonias of Intestinal Origin in Infants. (*Mal. de l'Enf.*, 1892, x., 201.)

In 1887. Dr. Sevestre published the following conclusions: "1st. In infants from one to two years old (and probably at other ages also) subjected to improper food a decomposition of the intestinal materials may occur from which result a fœtid diarrhœa and an infectious enteritis. 2d. Consecutively there may be a general infection and particularly pulmonary congestion and broncho-pneumonia. 3d. Agents for intestinal disinfection, especially calomel and naphthaline, are the best means for checking the diarrhœa and preventing the pulmonary complications." The present paper is the report of a study of twenty-six cases. Cultures were made from the stools and from fluid obtained by puncture of the lung during life. Of the

twenty-six cases from which cultures were made, sixteen showed a single variety of microbe, five included at the same time several varieties, and in five cases the cultures remained sterile. In the sixteen with a single variety were seen pneumococcus eight times; staphylococcus three times; bacterium coli commune three times; bacillus encapsuled twice. In the five broncho-pneumonias with more than one variety: pneumoc. and staphyl. three times; staphyl. and coli-bacil. once; pneumoc. and bact. termo. once. In the majority of cases, the broncho-pneumonias occurring in the course of infectious diarrhœas in infancy are secondary and due to microbes added to and depending on the specific agent of the diarrhœa. The virulence of forms of microbes and parasites contained normally in the mouth is favored by the specific agent of the diarrhœa. The treatment should be prophylactic, hygienic and curative. Prophylactic: consists in *isolating those attacked* and in disinfecting everything which has been in contact with the stools. Hygienic: considers the ætiological conditions which produced the diarrhœa. Curative: addressed to the diarrhœa by a general treatment (calomel, benzo-naphthol) and to the broncho-pneumonia by local treatment.

Goodwyn, H., (Bovey Tracey, Devon.): Pigmented Vesicular Rash in an Infant. (*Brit. Med. Journ.*, 1892, ii., 18.)

The patient was a female, and when three days old one or two spots appeared about the arms and hands, on the fourth day on the body and legs, on the sixth day they began to die away, and by the tenth there was not a trace of them.

The characters of the rash were as follows: There was a red spot, papular in appearance, slightly raised, and with a tiny vesicle in the centre containing a bright yellow fluid. The vesicle gradually increased in size until it completely replaced the areola of redness and eventually attained the size of a split pea; it then went through some process of absorption and disappeared. One or two fresh spots appeared every day the rash was out. The child was perfectly well, had no rise of temperature nor disturbed digestion and the bowels were natural. The urine contained no bile. The contents of the vesicle were, in my opinion, a bile-stained fluid. Those that broke stained the child's linen a bright yellow and stiffened it. The skin between the vesicles was perfectly natural in color, but it

is difficult to account for the condition, unless it be a modification of infantile jaundice.

Bowen, W. Sinclair, (Washington, D. C.): A Fatal Case of Laryngismus Stridulus in an Infant Six Days Old. (*Med. News.*, Phila., 1892, lx., 434.)

Everything went well with the child until the sixth day when it was noticed that it did not nurse regularly or with the same ease as it had, its breathing seeming to be interfered with. A slight rhinitis was the sole abnormal condition to be detected. There appeared marked paroxysms of dyspnoea. There was noticed a catch in the breathing, followed by more spasmodic respiratory movements, the inspiratory act becoming more and more stertorous until finally suspended. There was general tonic convulsions involving nearly all of the muscles of the body and extremities, especially those of respiration, the thorax becoming hard and immovable. The face and neck became livid and covered with large drops of perspiration. During the attack death seemed imminent, as neither pulse nor respiration could be detected. After the spasm relaxed, the child seemed as comfortable as ever. One grain of bromide of potash was given at intervals of half an hour, and the paroxysms were prevented by the inhalation of chloroform. During the entire day no nourishment was taken, but, although during the four hours following, nearly a glassful of mother's milk was swallowed, the patient died at the end of that time, apparently from exhaustion.

Radcliffe, S. J., (Washington, D. C.): Remarks on Typhlitis, as Suggested by a Case in a Child of Nine Years, Probably Caused by Seeds of Fruit Eaten a Month Previously. (*Va. Med. Month.*, 1892, xviii., 122.)

She was first seen on November 14th with an undoubted attack of typhlitis. Her abdomen was ordered to be rubbed with camphorated oil, and flaxseed meal poultices applied continuously over the seat of pain, and teaspoonful doses of castor oil with ten drops of tincture of hyoscyamus in aromatic emulsion was prescribed to be given every two hours, alternately with two drachm doses of spirits of mindererus. The next day three grain dose of salicylate of soda was substituted for the spirits of mindererus. She gradually improved, and on the eighth day was able to sit up, and on the tenth day was discharged, apparently well.

Fulton, Alexander, (Philadelphia): Diphtheria and its Treatment. (*Med. News*, Phila., 1892, lx., 459.)

This treatment has been successful in thirty-seven consecutive cases. It consists in the application to the patches of a strong solution of argentic nitrate, \mathfrak{I} i to \mathfrak{f} \mathfrak{z} ss. of rose water, by means of a throat brush. It must be done thoroughly and twice a day.

This procedure should be immediately followed by a gargle, *e.g.*:

R Tr. Kino..... \mathfrak{f} \mathfrak{z} ii.
Glycerine..... \mathfrak{f} \mathfrak{z} ii.
Ol. Eucalyptol gtt x \mathfrak{M} .

S.: A teaspoonful in a tablespoonful of water as a gargle. After this the throat should be dusted with the following,

R Hydrarg. chlor. comos..... gr. i.
Pulv. sulphuris..... \mathfrak{z} i. \mathfrak{M} .

S.: Blow a pinch into the throat every four hours.

Internally, the following mixture should be given according to the age of the patient.

R Pulv. potas. chlorat..... \mathfrak{z} ii.
W. Ferri. chlor... .. \mathfrak{f} \mathfrak{z} ii.
Syr. limonis..... \mathfrak{f} \mathfrak{z} iii.
Ol. gaultheriæ..... gtt. iii. \mathfrak{M} .

S. A teaspoonful every two or three hours.

Apply externally over the site of the tonsil.

R Tr. iodi \mathfrak{f} \mathfrak{z} ii.
Ol. camphorat..... \mathfrak{f} \mathfrak{z} i. \mathfrak{M} .

S.: Apply every four hours.

When there is a rise of temperature give small doses of antipyrine. During convalescence use mist. ferri et ammon. acetatis, light nutritious diet and champagne.

Christopher, W. S., (Chicago): Classification of Diarrhœas and Ætiology and Pathology of Summer Complaint. (*Journ. Am. Med. Assoc.*, Chicago, 1892, xviii., 550.)

The most scientific classifications of diseases is based upon their ætiology, and the following classification, although not complete, is framed on an ætiological basis.

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| I. Causes arising in tissue change. Nutritional disturbances. | { | 1. Rickets.
2. Scurvy.
3. Tuberculosis.
4. Wasting diseases generally.
5. Nervous diarrhœa. |
|---|---|---|

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|---|---|--|
| II. Poisons developed in the blood. | { | 1. Septicæmia.
2. Specific infectious diseases.
<i>a.</i> Typhoid fever.
<i>b.</i> Tuberculosis (?)
<i>c.</i> Malaria.
<i>d.</i> Amœbic dysentery (?)
<i>e.</i> Influenza. |
| III. Poisons developed in or on the intestinal walls. | { | 1. Diphtheria of the bowel.
2. Amœbic dysentery.
3. Thrush.
4. Chronic ulcer. of the bowels. |
| IV. Poisons developed in the intestinal contents. | { | 1. Asiatic cholera.
2. Summer complaint (infants).
3. Chol. mor. (adults & older chil.)
4. Typhoid fever.
5. Amœbic dysentery. |

The following summary of the ætiological factors of summer complaint is presented.

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|---|---|--|
| I. Means favoring the contamination of food by microorganisms and their growth therein. | { | 1. Uncleanly surroundings.
2. High atmospheric temp.
3. Infection. |
| II. Means favoring the introduction of microorganisms into the intestinal canal and the formation of poisons there. | { | 1. Artificial feeding (in whole or in part).
2. Weaning.
3. Over-feeding.
4. Preponderance of proteid food. |
| III. Conditions diminishing the child's resistance. | { | 1. Age.
<i>a.</i> Natural delicacy.
<i>b.</i> Preponderance of absorptive tissue.
2. Atmospheric heat.
3. Preliminary dyspepsia.
4. Constitutional conditions.
<i>a.</i> Premature birth.
<i>b.</i> Hereditary diseases.
<i>c.</i> Rickets.
<i>d.</i> Scurvy.
<i>e.</i> Other debilitating influences. |

Dejarine (Paris): Congenital Spastic Rigidity (Little's Disease).—(*Revue Mensuelle des Maladies de l'Enfance*, April, 1892.)

An interesting case congenital spastic rigidity forms the subject of a valuable lecture by Dejarine at Granchie's clinic. The patient was a man forty-seven years old, of good muscular development, but without power to use the upper and lower limbs freely, owing to spastic rigidity. All the weight of the body rested on the right leg in order to make one step forward with the left, and this manœuvre was reversed in going forward with the right. He walked on the tips of the toes, balancing himself in the way that is characteristic of this particular condition. The same stiffness existed in the arms. On voluntary motion, there were athetoid movements that increased the awkwardness already present. The face in repose showed nothing extraordinary. But when the attention was arrested or attempts to speak were made, violent contortions took place, together with choreic and athetoid movements of the head and trunk, and about the shoulders. There was neither paralysis nor atrophy, nor loss of muscular force. Speech was slightly scanning in quality; knee-jerk was exaggerated. There was no alteration of special sense nor of general sensation; no nystagmus, nor morbid conditions of sphincters. Such as he then appeared, the patient had been always, his disorder being congenital and known as Little's disease or congenital spastic rigidity, sometimes called spastic paraplegia of childhood, infantile spastic spinal paralysis, and infantile spastic locomotor ataxia.

A few days after birth there is certain stiffness of limbs. This may not be discovered till some time during the first year, when it is first noticed in bathing or dressing the infant. The knees are drawn closely together and can, with difficulty, be separated. Towards the twelfth or fifteenth month, there is well-defined spastic rigidity of the lower and upper limbs and of the face. This may be of varying degree, from simple stiffness to absolute rigidity. Sometimes the lower limbs only are affected, but generally the arms and legs are equally contracted. The child cannot walk alone till the age of four or five. When supported under the arms he walks in the same characteristic manner that later appears as his natural gait. Sometimes distinct psychic troubles are present. Little described two forms of this disease, the spinal, in which intelligence develops as in ordinary persons; and the cere-

bro-spinal, in which there is simple backwardness, sometimes imbecility or complete idiocy. The ordinary form of spastic rigidity presents only contractures. Less frequently, to these are added choreic-athetoid movements on voluntary motion. And in extreme cases these exist, together with rigidity, during repose. A cure has taken place in certain cases towards the age of fifteen or twenty years. Ordinarily, there is no improvement, though certain of these afflicted children have been taught to dance and to acquire some trade. Swedish gymnastics, passive movements, massage and salt baths may do some good when the difficulty is of purely spinal origin.

Saalfeld: Urticaria and Prurigo in Children. (*Revue Générale de Médecine, de Chirurgie et d'Obstétrique*, No. 33, p. 258, August 17, 1892.)

Kaposi's idea that urticaria may become transformed into prurigo is generally conceded to be sound. This adds gravity to the prognosis of urticaria, and must of necessity be considered in treatment. Among children in good general condition, appropriate diet and some external application as sulphur, naphthol, or tar ointment, and a bath every other day, usually suffices to cure the condition in a short time. But in long-standing cases, a tepid bath following frictions with sulphur and tar-soap are a daily necessity. On coming out of the bath the patient may be covered up in bed for two hours and then anointed with tar, sulphur, naphthol, pyrogallie acid, menthol or chrysarobrin ointment. In inveterate cases, subcutaneous injections of pilocarpine are of advantage. Certain internal remedies are indicated in children who are scrofulous or run down, or who suffer from gastro-intestinal catarrh, a frequent cause of urticaria. Country life always has a favorable effect upon this particular skin disease. According to Liebreich's theory, cantharidine and its salts ought to possess a certain efficacy in the treatment of prurigo.

Szego, Koloman: Polymorphism of Diphtheria. (*Revue Générale de Médecine, de Chirurgie et d'Obstétrique*, No. 34, p. 267, August 24, 1892.)

An epidemic of diphtheria in an asylum containing 102 orphan girls, presented certain points of special interest. The inmates attacked, thirty-five in all, divided themselves clinically into three distinct groups. In the first place, from the earliest examination, pharyngitis was present with patches of membranous exudation. Out of ten

cases of this kind, six children died, four after signs of septicæmia, and two following the invasion of the nose by the pseudo-membranous exudation. In the second group there appeared at first a simple follicular tonsillitis, followed by the formation of diphtheritic false membrane. And in the third group, the disease manifested itself throughout as a follicular tonsillitis. The author recalls the fact that an English physician, Mouillot, published in the *Dublin Journal of Medicine* (April, 1887), similar observations of the polymorphism of diphtheria.

Aviragnet, E. C: *Clinical Forms of Tuberculosis in Children.* (*Revue Mensuelle des Maladies de l'Enfance*, Vol. x, p. 318-367, July-August 1892.)

Tuberculosis in children gives the same clinical types as appear in adults when in acute or chronic tuberculosis there are localized lesions. But localized lesions, the rule in adults, are exceptional in children. More than this, they are of extremely rare occurrence in early infancy. The period of life from birth to two years presents a special soil, virgin in the matter of infection, and offering but slight resistance to bacillic invasion. Tuberculosis, under these circumstances, does not confine itself to one organ. It rapidly becomes general by means of the circulation and lymphatic glands. Tubercular lesions thus developed in different organs are not sufficient in themselves to cause death, but as a whole seriously affect the child's economy. This condition is also seen later than during the first two years of life, as late as five or six years, less frequently but by no means exceptionally. The numerous clinical aspects of tuberculosis in childhood are the following:

A.—General Tuberculosis.

I. Acute General Tuberculosis. 1. Subacute infectious tubercular fever. 2. Fatal acute granular tuberculosis, of typhoid or capillary bronchial form (*granular tuberculosis of Empis.*) 3. Typho-tuberculosis. Usually curable, running a course like that of dothienteritis. (Attenuated granulation) (Landouzy's typho-bacillus.)

II. Subacute general tuberculosis.

III. Chronic general tuberculosis.—Diffuse tuberculosis.

B.—Localized Tuberculosis.

I. Localized tuberculosis of rapid development. 1. In the form of pneumonia (caseous pneumonia.) 2. In the form of acute or subacute broncho-pneumonia.

II. Localized tuberculosis of slow development. 1. Of the lungs and pleura. 2. Of the bronchial ganglia. 3. Of the digestive tract of the liver; of the peritonæum. 4. Of the meninges, the brain, etc.

While it is rare to find lesions definitely located in one organ alone, it has seemed wise to denominate the condition *localized* when the abnormal process is manifestly predominant in some special organ, and to consider this predominance primary and the adjoining lesions of more recent date.

Of general tuberculosis, subacute infectious fever is a prominent manifestation, described by Landouzy and Queyrat. It is sometimes fatal before gross lesions have tissue to appear, running the ordinary course of profound infection without sufficient pulmonary implication to cause death. One case only occurred during a year's service at the hospital attached to the Tenon Foundling Asylum. Subacute infectious tubercular fever shows itself during life more as a general disease with fever, vomiting, diarrhœa, and emaciation, than as a strictly pulmonary disorder. After a few days the fever and typical phenomena are well established. There is extreme prostration, dry skin, a sunken eye, parched tongue, excessive thirst, sometimes vomiting and excessive diarrhœa. The abdomen is distended and painful; liver slightly hypertrophied and sensitive on pressure; spleen, apparently normal; lungs dull at base, with subcrepitant râles, and a murmur sometimes present; the nervous system shows but slight involvement. Death may occur in a few days, and a positive diagnosis is next to impossible, the condition bearing so close a resemblance to infectious enteritis.

Typho-tubercular or continued tubercular fever begins as a dothienteritis and follows an orderly characteristic cycle, usually ending in recovery. In spite of the writings of Landouzy, Empis, Jeannel and Papon, this form of tubercular disease is not well understood by physicians. It may be looked upon as the first manifestations of tuberculosis, or simply as an acute attack of a latent morbid process, the latter being its mode of onset in the majority of cases. No matter what clinical form it may assume, acute tuberculosis is nearly always secondary to general infection. The acute forms of general tuberculosis are two, granular tuberculosis of the typhoid type, and granular tuberculosis of the broncho-capillary or the

broncho-pneumonic type. The symptoms of these conditions are exactly the same as in adults. Subacute general tuberculosis comes on in various ways. It may be the outgrowth of an arrested process of a granular tuberculosis, of a continued tubercular fever, or of a tubercular pneumonia or broncho-pneumonia. It constitutes an intermediate state between acute forms that cause death in a few days, and chronic forms lasting for months or years. There are ulcerative lesions in the lungs common to the chronic condition and not found in the acute. The onset is rarely sudden and presents phenomena usual to infections—general discomfort, prostration, muscular pains, torticollis, cephalalgia, and sometimes periodic chills. Fever comes on rapidly, and is unlike that of typhoid, for its rise is gradual. The tongue is white through the centre, red on its borders, the breath foetid; there is loss of appetite; nausea and vomiting may be present; diarrhoea is profuse in the beginning, but disappears later. There is no tympanitis, no rose-colored spots, no sensitiveness in the iliac region, though there is gurgling when diarrhoea is profuse. The spleen is enlarged, the liver slightly hypertrophied, and sometimes the urine is albuminous. The lungs show signs of bronchitis from the first. The apex or the base very shortly gives evidence of changes that suggest tuberculosis. All this time, the expression of countenance strongly suggests typhoid fever. For a whole week, diagnosis is impossible. Then the preservation of complete normal consciousness, the absence of increase in prostration and of nervous phenomena, clear up all doubt. Symptoms disappear gradually; the duration of the disease being about four or five weeks. Convalescence is rapid. There is but little loss of flesh and but slight weakness, conditions peculiarly characteristic of continued tubercular fever. Alteration in the lung substance consists in a more or less congested area about regions containing tubercles. These tubercles act like foreign bodies, causing congestion as does a foreign body in the eye. During convalescence, the only pulmonary sign that remains is a lessened vesicular murmur.

The author suggests that whenever typhoid symptoms exist in a child, it is wise to think at once of tuberculosis. Immediate prognosis is always favorable; but for the dim future it is grave, for later manifestations are pretty sure to appear.

Diffuse or chronic general tuberculosis is the common-

est clinical form in young children, appearing at the age of two years, at three, four and five. However general its manifestations, the rule is that one organ is more affected than the other, and thus its diagnosis is greatly facilitated. Of variable onset, it may simulate either typhoid fever or gastric trouble, a slight bronchitis or a prolonged broncho-pneumonia. Soon characteristic symptoms appear. There are bronchial râles and dulness at the apex, slight cough, no dyspnoea or expectorations. In spite of a good appetite and fair digestion, these children waste away. Some have attacks of vomiting two or three hours after meals. Diarrhoea may be present; and if persistent, points to ulcerative tubercular enteritis. The liver and spleen are always enlarged; also the axillary and inguinal glands. In the beginning there is no rise of temperature in little children. Fever appears towards the close of life. In older children, fever and wasting are constant. Meningitis may close the scene. Then temperature rises rapidly, and the pulse may become characteristic of meningitis. Fever, wasting, enlargement of the liver and spleen, of the axillary and inguinal glands, are the chief symptoms of chronic general tuberculosis. Localized tuberculosis frequently assumes the appearance of acute or subacute broncho-pneumonia, sometimes that of simple pneumonia, which is a rare manifestation in children. An early diagnosis is impossible. The broncho-pneumonia type presents the symptoms of ordinary broncho-pneumonia, dyspnoea, fever, area of dulness in the lung; murmur and râles in the opposite lung, diffuse sibilant and subcrepitant râles. Inquiries should be made into the family and personal history of the patient. In a poorly-nourished child who takes cold and coughs easily, tuberculosis is always to be suspected. While broncho-pneumonia following measles is usually non-tubercular, it is well to bear in mind that measles often lights up latent tuberculosis. Physical examination should be thorough, for corroborating signs, as tubercular skin disease, Pott's disease, general superficial polyadenitis, tubercular testicle, etc. Even when such evidences are absent, the violent dyspnoea that is out of all proportion to the physical signs, points directly to tuberculosis. Acute tubercular broncho-pneumonia lasts four or five weeks, taking on special characteristics about the eighth or tenth day.

Then begin wide variations of temperature, sweats, wasting and lesions in pulmonary tissue. At the end of

three weeks any doubt as to the true nature of the disease is dissipated. The child wastes rapidly, vomits, has diarrhoea and dies from extreme inanition at the close of sixth-week. In subacute tubercular broncho-pneumonia the symptoms are about the same, though of slower development and duration. It runs its course in from two to three months, and is popularly known as quick consumption. There are remissions, when the appetite and normal temperature return.

Chronic localized tuberculosis, whether pulmonary, hepatic, peritoneal, intestinal, meningeal, etc., is not found in very young children; never before the age of six or seven years. Even in this form the disease is not strictly localized; for while some special organ seems most profoundly affected, others show traces of tubercular degeneration. Anatomically, the lesions are the same as in adults. Clinically, there are certain differences. The onset is often abrupt, and may be preceded by frequent attacks of bronchitis, due to simple congestions about tubercular deposits. Hæmoptysis is rare before ten years of age. Sometimes respiratory weakness exists without dulness or increased respiration.

Tuberculosis in children offers the following points of interest:

I.—Tuberculosis in children presents a marked tendency to become generalized. Localized expressions of this disease must be regarded as exceptional.

II.—General tuberculosis is acute, subacute or chronic. When acute, it manifests itself in three different forms: (*a*) subacute tubercular infection; (*b*) tubercular continued fever, typho-tuberculosis; (*c*) acute general granular tuberculosis. The subacute form is galloping consumption. The chronic is that form found among the very youngest children.

III.—Localized tuberculosis may also be acute or chronic. Acute, it constitutes the so-called caseous pneumonia and broncho-pneumonia, and does not appear to be due solely to Koch's bacillus, but to this bacillus associated with other microbes. It is a mixed lesion. Other chronic forms are either pulmonary, intestinal, peritoneal, hepatic or meningeal tuberculosis.

III.—SURGERY.

Murray, R. W. (Liverpool): Congenital Wry-Neck. (Liverpool, *Med. Chirurg. Journ.*, 1892, July, 287.)

He endeavors to show that congenital wry-neck is not due to injuries inflicted at birth, that it is not due to affections of the cervical sympathetic, nor to affections of the motor or sensory nerves of the face and neck, nor to a lesion of the central nervous system. It is in every way analogous to congenital talipes equino-varus, the chief points of similarity being:—

1. Both are congenital affections and occur, as a rule, in children otherwise perfectly healthy.

2. In both the deformity is maintained by shortening of muscles, fascia, etc., on the side of flexion.

3. In both, the skin and subcutaneous tissues are stunted in growth on the side of flexion—one side of the face and the cutaneous structures of the neck in one instance, and the skin and subcutaneous tissues of the inner side of the foot in the other.

4. In both the appearance of the affected parts is that of stunted growth rather than that of atrophy.

5. In both the reaction of the muscles to electricity is normal.

6. In both the deformity becomes more pronounced as the child advances in years.

7. In both there is a complete absence of paresis or paralysis, and the limitation of certain movements is entirely due to the resistance of shortened structures.

Dr. Parker has proved beyond question that club-foot at birth is due in the great majority of cases to a "permanent, though somewhat exaggerated, condition of a physiological position," during intra-uterine life; and the writer adopts precisely the same argument, that "during intra-uterine life" the head "should occupy various positions and if from any cause" the head "remains permanently and laterally flexed" congenital wry-neck is apt to result. While the evidence does not admit of absolute demonstration, it goes a very long way to prove that congenital wry-neck is due to mechanical causes acting during intra-uterine life; that other cause, such as hereditary and foetal environment, may be important factors is far from improbable, but that in no way invalidates the argument.

Lichtwitz, L. (Bordeaux): Endolaryngeal Extirpation of Multiple Papillomata of the Larynx in the Infant by Intubation with a Fenestrated Tube. (*Arch. Clin.*, Bordeaux, 1892, iv., 186.)

The method consists in practising intubation with the aid of a tube pierced by an opening, which opening shall be so placed that the tumor protrudes into the interior of the tube. The tube, which should correspond in size with the age of the child, being in place, the operator should satisfy himself by the aid of the laryngoscope that the growth appears through the fenestrum. Then without other guide than the finger, forceps, curette, or other laryngeal instruments, may be introduced. It is important to use tubes made with thin walls and the interior of the tube should be blackened to facilitate the laryngoscopic examination. Sometimes the examination is impossible after the intubation. One may then attempt the extraction of the neoplasm, notwithstanding since the risk is solely of removing nothing and he is then free to recommence the intubation with a tube with larger opening.

A case reported is as follows: Girl of four-and-a-half years. Fourteen months before became hoarse. Since two months complete loss of voice. Difficulty in respiration for the same length of time, very pronounced in last month. The child wakes often in the night with crises of suffocation. On examination the child presented all the symptoms of a pronounced laryngeal stenosis. The voice completely aphonic. The laryngoscopic examination, difficult by cause of the dyspnoea and the epiglottis closing, showed a mobile, tongue-shaped tumor apparently growing from the level of the anterior commissure of the vocal cords and obstructing the glottis. For three weeks attempts were made daily to remove the growth but without success. It was found that the anterior two-thirds of the larynx and a part of the sub-glottic space were filled with papillomatous growths in the form of a cauliflower. Compression by allowing the tube to remain was tried. Finally the fenestrated tube was used. The first two attempts were unsuccessful, the opening being too small, but at the third attempt with a tube with an opening of the diameter of 5 m. m. numerous fragments were run over with Shroetter's and Heymann's forceps. Five more sittings were necessary to remove all the growths, more than thirty fragments. Finally the seats of the growths were cauterized with solid nitrate of silver

used through the fenestrated tube. The extirpations were never followed by the least reaction, local or general. The child now breathes without the least difficulty and the voice, while hoarse, is easily understood.

Gillet, H.: Erosive Vesicular Erythema of the Buttocks in an Infant, Followed by Prolonged Subcutaneous Cellulitis. (*Mal. de l'Enf.*, Paris, 1892, x., 221.)

A report of a case of this unusual complication of a condition so frequently seen. The cause was to be sought in the absorption through the broken skin of pathogenic organisms or their products.

Dawbarn, R. H. M. (New York): A Clinical Lecture on Circumcision. (*Intern. Journ. Surg.*, 1892, v., 198.)

Invariable circumcision, on account of the comparative immunity of circumcised men regarding venereal disease. In regard to the technique of the operation, it is advised to keep a piece of drainage tube fastened about the root of the penis to avoid unnecessary loss of blood. The prepuce should be removed, at least in greater part, and not simply slit. Leave just enough to cover the glans penis. Slit the foreskin up the dorsum glandis on a grooved director, after which seize with a forceps the cut edge and trim away with scissors both skin and mucous membrane at the same stroke. At the frænum it is left moderately long. Use a running suture of antiseptic catgut and paint the line of union with aristol flexile colodion, 5 per cent. In the subsequent treatment do not use any ointment, but keep it well dried and dusted, and wrapped in absorbent cotton. Hold it in place with a T bandage of napkins.

Lovett, R. W. (Boston): The Surgical Aspect of the Paralysis of New-Born Children. (*Boston M. and S. J.*, 1892, cxxvii., 8.)

The paralysis occurs most often in very difficult and in instrumental labors, but it is not necessarily limited to these, and may result from labors apparently normal. It is probably due to some injury of the brachial plexus, and is generally associated with strong traction made upon the head. Last and most important of all, is the fact that the affection is not in most cases a transient one, but that the outlook is doubtful at best, and a disabled arm is most likely to result after years of slow and unsatisfactory improvement.

Overholt, F. (Harlan, Ia.): A Case of Malignant Tumor of the Femur in a Boy Aged Thirteen Years, Occurring in the Practice of E. J. Smith, M.D. (*Med. Rec.*, New York, 1892, xlii., 44.)

There is a history of injury to the knee in August, 1891, and on November 22, 1891, it had all the appearances of a simple synovitis. Four weeks later pain and swelling above the knee appeared. On January 1, 1892, the leg was amputated, but on February 20th the disease had appeared in the stump, and from there extended up into the abdomen. He died on March 10th. The features of interest in the case were:

1. The rapid growth.
2. A desposit of very yellow fat, half an inch thick over the whole leg, although the other leg or thigh was so thin that one could reach around it with the hand. This fat broke down and came away from the stump.
3. The cartilages of the articular facets of the femur and tibia seemed sound, although just above the condyles of the femur a scalpel could be easily run through what was left of the bone.
4. The entire tumor was black and gangrenous when removed.

Binnie, J. F., (Kansas City, Mo.): Report of a Case of Microcephalus; Operation; Death; Remarks. (*Kansas City Med. Index*, 1892, xiii., 125.)

The child was a male infant, aged twenty months. The diagnosis was microcephalus and obstructive brain development, causing retrograde changes in the speech and motor regions. He died thirteen hours after the operation. The writer from an analysis of this and other reported cases draws two conclusions. 1. That there are two forms of microcephalus: (a), congenital (b), acquired, and 2. That craniotomy while indicated in acquired microcephalus will most probably be useless in congenital.

McGuire, C. M., (Seymour, Iowa): A Case of Tonsillitis; Tracheotomy. (*Med. News*, Phila., 1892, lv., 550.)

The patient was a female infant, eight months old. There was no evidence of membrane nor laryngeal obstruction. Tracheotomy was done for difficult breathing due to the obstruction of acutely enlarged tonsils, the inflammation in which appeared secondarily to an inflammation of the parotid glands. The operation relieved the dyspnœa, but the child died twelve hours later.

Tunis, Joseph P., (Philadelphia): Traumatic Tetanus in a Child; Recovery. (*Annals Gynæc. and Pæd.*, Phila., 1892, v., 433)

The patient was a boy, six years old. About two weeks before admission, an abscess developed on the left foot, around the site of a neglected cut, and ten days before admission the spasms began. Each spasm lasted for at least ten seconds, sometimes longer, there being so many spasms occurring one after another that it was impossible to tell the exact duration of each. Often one convulsion followed the other so rapidly that the child was in a constant condition of spasm. For the first five or six days he averaged a spasm every few minutes, after which they became less and less frequent. Six weeks elapsed before they entirely disappeared. The whole duration of the disease was about sixty days.

The treatment adopted was as follows: Immediately on admission a bath as hot as could be borne was administered. Hydrate of chloral, two grains, and bromide of potassium, five grains, were given every hour until he had taken ten doses, when they were given every three hours. Six drachms of whiskey were administered in twenty-four hours during the first week, after which the amount was steadily decreased and stopped altogether. Toward nightfall, when he was still restless and there appeared to be no chance of his sleeping, $\frac{1}{16}$ grain of morphia was administered. This dose had frequently to be repeated once and sometimes twice in the night to produce sleep.

Obstinate constipation proved to be one of the most troublesome features of his disease. Calomel followed by Epsom salts was given, but it became necessary to use glycerine suppositories, enemata and finally to resort to digital removal. The wound was freely opened, and kept thoroughly clean by syringing out with bichloride solution 1 to 2,000.

Canon, J. J., (Moscow, Texas): A Fœtal Monstrosity. (*Med. News*, Phila., 1892 lx., 436.)

The fœtus had only a rudimentary brain; one anterior nasal orifice; hare-lip; cleft palate; the superior maxillary bone being in two distinct pieces. The feet and hands were extremely large, the fingers unusually long; the body was covered with a fine hair. The head was almost flat, the distance from the glabella anteriorly to a corresponding point posteriorly being but one-and-a-quarter inches. The mother was a primigravid negress, twenty-two years old.

Lohrstorfer, Frederick, (Port Huron, Mich.): A Report of Cases Tracheotomized. (*Journ. Am. Med. Assoc.*, Chicago, 1892, xviii., 452.)

A record of seven cases are presented, three of which recovered. However, no one of them were under four years of age, the average being nearly six years. A skilled nurse was placed in charge of every case. The medicinal treatment consisted in the administration of tinct. ferri chlorid., and potassium chlorate, or bichloride of mercury, with strychnia and alcoholics as heart tonics. Peptonized milk diet. An even temperature of 80° F. was maintained, and instead of keeping the whole room filled with vapor from boiling water, a steam atomizer spraying lime-water was allowed to play on the tube a large portion of the time.

Raynor, F. C., (Brooklyn): A Case of Laryngeal Growth. (*Journ. Am. Med. Assoc.*, Chicago, 1892, xviii., 542.)

The patient was a girl, aged twelve. She complained of hoarseness, slight hacking cough and dyspnœa on exertion, which she had first noticed about six months previously. An examination showed a papillomatous growth on the top of the right vocal cord near the anterior commissure. It extended upward into the ventricle, was oblong in shape and had an attachment of about three-eighths by one-fourth inches. It was pale in color, contrasting strongly with the adjacent tissues which were all congested.

After many attempts at removal through the mouth with different instruments, after the application of salicylic acid and acacia, and after a hurried tracheotomy for asphyxia due to the impaction of the growth in the glottis, it was decided to do thyrotomy. This was done by Dr. Sherwell on October 20, 1889, and the growth was thoroughly removed. She made a good recovery, and after her discharge from the hospital was not seen again until February 4, 1890. She returned with extreme dyspnœa and a sore throat, due to a cold which she contracted four days previously. An examination showed general congestion and an irregular thickening of all the tissues, but no well-defined growth. For this dyspnœa, intubation was done by Dr. McNaughton, much to the relief of the patient.

On the fifth day the largest size child's tube was coughed up and pushed into the œsophagus in her efforts to replace it. A small adult tube was re-inserted and re-

moved in five days. It accomplished its purpose and she afterward breathed comfortably. On the 15th, well-marked physical signs of phthisis pulmonalis were found. On March 1st she had another attack of dyspnœa which was relieved by one day's wearing of the O'Dwyer tube. On the sixth of June she passed per rectum, the tube swallowed on February 5th. In the early morning of June' fifteenth she had a severe attack of dyspnœa and died before the physician's arrival.

Southam, F. A., (Manchester): Lithotritry in Children. (*Lancet*, 1892, i., 910.)

Brief particulars are given of six cases. In each instance the result was extremely satisfactory. With two or three ounces of fluid (boric lotion) in the bladder, and the pelvis and thighs of the patient slightly raised so that the stone may fall back upon its posterior wall, the operation is a very simple one; in fact, much easier of performance than in an adult, the absence of any pouch or depression behind the prostate facilitating the seizure of the calculus and the removal of the fragments after it has been crushed. The size of the stone may be estimated by measuring it with a small lithotrite when the child is sounded. As cystitis is usually present, the bladder should be washed out with boric lotion every morning for a few days before the operation. If the urine is very offensive small doses of boric acid may also be given internally. In none of the cases was it found necessary to continue the irrigation after the operation. It is important to guard against exposure to cold, and also to diminish as far as possible the effects of shock.

If hot fomentations are applied to the lower part of the abdomen and perinæum after the operation, the child will usually pass urine in the course of a few hours without any straining or difficulty, and, beyond a slight smarting, with very little pain, usually much less than previously to its performance. It is advisable to keep them in bed till the third or fourth day, when they may sit up in the ward, and at the end of the week they are usually quite fit to leave the hospital. In each instance the operation was performed with Weiss's Nos. 5 and 7 children's lithotrites, and the fragments removed with Nos. 6 or 8 evacuating tubes. It is believed that in the future lithotritry will quite supersede lateral lithotomy in children, and also that if a stone is too large to be crushed it will be an indication for the selection of the suprapubic operation.

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Original Communications.

A CASE OF DEATH FROM LARYNGISMUS STRIDULUS IN INCIPIENT RACHITIS.*

BY SAMUEL S. ADAMS, M.D.,

Washington, D.C.

DECEMBER 14, 1891, I was called to see Y. Z., male, aged four months, who had been brought to this city from a neighboring state a few days prior to my visit. His parents were strangers to me, but explained the object of my visit to be to instruct them in the management of his diet, and to prescribe for an acute tonsillitis.

Previous history: Was delivered, without instrumental aid, by an accomplished accoucheur, of Lexington, Ky., and, when one month old, was given sterilized milk, prepared after Meigs' method. When six weeks old he was removed to a prosperous town in the mountains of Virginia. For some unaccountable reason he did not thrive upon the milk obtained in this town, in spite of the care exercised by his father to secure the very best. He was then brought here and soon began to thrive upon milk obtained from a reliable dairy and prepared by the above-mentioned method.

* Read before the American Pediatric Society, Boston, May 4, 1892.

Present condition: A well nourished infant and, with his cooing, laughing, eating and sleeping, presents a picture of perfect health.

I approved the method of feeding, as he was taking about four ounces of the mixture every two or three hours which an examination of the stools, proved to be well digested. The tonsillitis ran a short course and he was discharged, cured, December 20th.

December 28th, was again called, and found him suffering from a severe attack of la grippe, which was characterized by hyperpyrexia (104° to 106° F.), rapid pulse and respiration, intense pain on being moved, anorexia and prostration. In about three days these symptoms subsided when bronchitis, confined to the large bronchi, developed. At my morning visit on the sixth day of this illness, January 2, 1892, I found the family of good cheer, as "the baby had slept nearly all night, had coughed but little and his breathing had improved." It required but a glance to determine that these symptoms had been misinterpreted, for the baby was cyanosed and otherwise in a precarious condition from double broncho-pneumonia. This also ran a short course and he was again discharged, January 12th.

February 26th. At 8 P. M. was again called to see the baby. He had grown heavier during the past month and had every appearance of good health. His mother desired to consult me about his loss of appetite and constipation. As to the former, I protested against the unusually large quantity of milk he was now taking, namely, seven ounces every three hours, and assured her he would return to his proper allowance in a few days. A mild cathartic was given for the constipation. My attention was also called to a peculiar noise which he made upon awakening, not unlike a croupy or crowing noise, which could be heard at some distance from the nursery. It was said that he had been perfectly well since my last visit, January 12th, and had been carried into the parks every pleasant day; and that until within a few days he had enjoyed his milk. He was bright and

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playful and slept very quietly but would always make this "peculiar noise" upon awakening. His grandmother described it as not unlike the "whoop" of whooping cough and expressed the wish that I could hear it.

February 27th, 3 A.M. Was called to patient on account of a convulsion which was over before my arrival. The child seemed to be dazed, but in a few moments laughed and made his nurse understand that he wanted a drink of water. Those that saw this convulsion described a typical eclamptic seizure. As the purgative had not acted I administered an enema, which brought away a small quantity of hard fæces. Sodium bromide was ordered.

Seven A. M. Had the second convulsion which was said to have been milder, and by the time I reached the house he was bright and lively and did not give the slightest evidence of discomfort. As his bowels had not moved, I gave another enema, and ordered two grains of calomel in one-third grain doses. Saw him several times during the day but there was no symptom to attract my attention, although the "noise" was said to have marked each awakening. He only took a small portion of milk at each meal. I saw him at midnight and he was sleeping naturally. The nurse now showed me a very large formed stool, composed mostly of masses of mucus and undigested casein.

February 28th, 2 A. M. Was called for the third convulsion, which was also over before I reached the house. I now determined to remain during the rest of the night in order to see him in a convulsion, if he should have another.

Six A. M. Was called to the nursery and, as I ran upstairs, heard the "noise" which was similar to the whoop. The diaphragm was fixed, there was a slight degree of cyanosis, and the eyes were fixed and the balls seemed to protrude. This tonic contraction soon gave way to slight clonic contractions of the eyelids and facial muscles, lasting only a few seconds. Upon recovering the child seemed dazed but in a few moments was laughing

and cooing. The family declared this to be much milder than the others.

Ten A. M. Dr. Busey saw the child with me and, after a careful examination, especially of the stools, coincided with the diagnosis of infantile convulsions from undigested and offending material in the alimentary tract. Dr. Busey also detected a slight bronchial catarrh, posteriorly. The prognosis was considered to be favorable and the treatment was to be continued.

February 29th. Patient passed a comfortable day. There was apparently no nervous disturbance but the noise was always made upon awakening although the interval became longer. His appetite had improved and the food was digested, as indicated by perfectly normal stools.

March 1st. Improvement in appetite and digestion continued, there was no nervous manifestations, and he seemed to be out of danger. At my midnight visit his grandmother called attention to a peculiar snapping of the eyelids and rolling upward of the eyeballs, which had occurred several times during the day.

March 2d, 12 M. Several urgent messages had been left at my office but I did not reach the patient until noon. He had had a number of very slight attacks during the morning, characterized by snapping of the lids and rolling upward of the eyeballs, drawing the thumbs across the palms and slight muscular rigidity. During this visit the child had a convulsion in which the carpo-pedal contractions were well marked.

Two P. M. Dr. Busey in consultation. Nurse said the patient had had "at least twenty convulsions of the eyes and eyelids during the day." While we were in the room he had a paroxysm which differed from those of the 27th, and 28th of February, and we were now certain that he had laryngismus stridulus.

He was carefully examined once more for evidences of rickets. The sutures and fontanelles were normal; there was no depression of the chest wall nor beading of the ribs; the joints were not enlarged nor the long bones

curved. Dr. Busey, however, called attention to the muscular flabbiness and expressed the belief that incipient rachitis was the primary cause. I suggested that possibly phimosis was the exciting cause and we determined to circumcise him in order to eliminate this factor.

We advised a continuance of the diet and also outside air whenever the weather would permit, and agreed to see him the following day at noon.

At eight o'clock that evening Dr. J. Taber Johnson came to the meeting of the Medical Society and surprised Dr. Busey and me by telling us that our patient had died very suddenly a few moments before he left home. The final scene is described by his grandmother, as follows: "In a little while after the doctors left he took his bottle and went to sleep. For three hours he slept so soundly that his mother more than once put her ear to his face to see if he was breathing and found him in a profound, beautiful sleep. He awoke about six o'clock, bright and in good temper, and really seemed better than since the first convulsion. Took his nourishment—five ounces—and was brought to the table where the family were and played with different members. His nurse took him from the table to the adjoining parlor, where the family had assembled. It was about time for his medicine to be given and he started to swallow it, a sudden strangulation came, and in an instant he was dead. His face and head became crimson, then the blood receded and he looked like a beautiful, healthy child asleep."

In presenting this case to the Society I realize that some of the members may have seen its like; but there may be a few, like myself, that have never seen laryngismus stridulus complicating rickets. In Washington rickets is a common disease among the negroes and is not infrequently met among the indigent whites, but this complication is not often recognized. One hundred and seventy-three cases of rickets in three thousand eight hundred and seventy cases treated in the Children's Hospital were without this complication.

DISCUSSION.

Dr. HUBER.—Dr. Adams tells us about the sutures and fontanelles, but not about the condition of the occipital and parietal bones. Were they soft in general or in spots, or was that point not determined?

Dr. ADAMS.—There was nothing to indicate any rachitis about the cranial bones by palpation.

Dr. EARLE.—How long was the child sick during the last attack?

Dr. ADAMS.—It was taken sick on Friday morning and died on the next Wednesday.

Dr. BLACKADER.—I would like to ask the opinion of this Society as to the frequency with which cases of laryngismus stridulus are met with in rachitic infants on this side of the water. We know how frequently laryngismus stridulus is met with in rachitic children in London and on the continent. In Montreal I may say that the cases of laryngismus complicating rachitis are comparatively few as far as my experience goes. It is not by any means a noticeable feature of rachitis as far as my experience goes in the English hospitals, and I would like to know whether that is the experience of other physicians. I am aware that we have to consider the comparative infrequency of severe symptoms in rachitis on this side of the water as compared with the large English centres, still the incipient rachitic stage is not at all an infrequent thing with us. Indeed, quite a proportion, I am not able to state the exact proportion, of the infants as met with in my out-patient room are distinctly rachitic as evinced by the distinct enlargement of the occipito-chondral cartilages, by delayed dentition and other symptoms. But the symptoms of laryngismus even in our changeable weather I think form a very infrequent symptom of rachitis as we see it in this country.

Dr. CAILLÉ.—The attacks of laryngismus stridulus must be looked upon as a symptom, and there are many causes for this symptom. When the cause for the spasmodic attack is intercranial there is as a rule nystagmus. Dr. Adams spoke of a twitching of the eyelids. You did not speak of nystagmus but twitching of the eyelid.

Dr. ADAMS.—There was no nystagmus.

Dr. CAILLÉ.—Then one of the most frequent causes of the spasmodic attack which has been called laryngismus stridulus are adenoid vegetations. Is the doctor sure there were no adenoid vegetations in this case?

Dr. ADAMS.—I did not examine for any. There was no evidence of any obstruction at all to the breathing. I examined the throat and the tonsils were perfectly normal after the tonsillitis had subsided.

Dr. CAILLÉ.—I think it is almost impossible in the case that has been presented to locate the trouble in the absence of an autopsy.

Dr. SEIBERT.—I would like to call the attention of Dr. Adams to a possibility of the cause of death sometimes not thought of, namely, enlargement of the thymus gland. The little boy of my colored driver, aged ten months, died not very long ago, a perfectly healthy child, while being washed. The child had never been sick, weighed about twenty-two pounds and was simply laid over on his stomach by the mother to wash the back. She suddenly noticed that the boy was stiff, turned him around and found him dead without convulsion and without struggle. The father insisted upon my making a necropsy, and I found a very large thymus gland as they have particularly been described by Dr. Jacobi in his recent work on that organ. Two weeks ago I think we had such a death in the New York Infant Asylum in a child that had been perfectly well save a very slight attack of gastro-intestinal catarrh, and it died very suddenly. Here the resident physician Dr. Bremmer found a very large thymus gland. We know of about twenty-eight or thirty cases reported in literature of sudden deaths in infants probably caused by large thymus gland.

Dr. KOPLIK.—I would like to ask Dr. Seibert the weight in this case of the thymus gland?

Dr. SEIBERT.—I don't know.

Dr. KOPLIK. The reason I ask this question is that in the normal child the gland varies a good deal in weight. Sometimes it weighs a few grains sometimes as many grammes, as has been shown in the work upon the thymus issued by Dr. A. Jacobi.

Dr. JACOBI.—Dr. Adams is very anxious to have a diagnosis of the case, and so are we. I wish to make a few remarks in order to point out the doubts I have myself and the doubts that must have come to everybody else here. It has been stated the diagnosis of rachitis was made; at the same time, however, it is positively stated that there was no rachitis of the cranium, no "cranio-tabes." There is no doubt about this in my mind that out of fifty cases of laryngismus stridulus forty-nine are of rachitical origin, so it is quite natural that we should look

for rachitis as the cause in this case too if we have to deal with an uncomplicated and bona fide case of laryngismus stridulus. The two per cent. I have mentioned of such cases as alluded to by Dr. Seibert are cases from another cause yet. In that history it has struck me that there was every cause for general rachitis. The baby had been fed on cow's milk exclusively if I understand the doctor right.

Dr. ADAMS.—Yes, sir.

Dr. JACOBI.—Now, if there is anything that will make a baby rachitical it is the exclusive use of cow's milk, no matter whether you mix it with a little water or not. Further, the baby has not been a well child. The baby was a fat child. The doctor says positively that after the child had had a severe case of pneumonia it grew fat very suddenly and was flabby, and Dr. Busey came to the conclusion that there were but little muscle, and more fat. As the baby suffered from constipation, a constipation due to insufficiency of the intestinal muscles and the condition of the food, the poor child would swell. All this points to general rachitis, and may have developed what there must have been afterwards in that brain. In an attack of laryngismus a convulsion may be the direct result of interrupted respiration and oxygenization, but as a rule both the attack of laryngismus and the convulsion come from the same source which is the abnormal condition of the brain and meninges. When the bones are rachitical they are succulent, bloody; when you cut through them the blood will soon ooze out. There is, at the same time hyperæmia of the meninges, there is very frequently hydrocephalic effusion, general œdema of the brain. Some such condition you must have had because the child had convulsions all the time. The child had twenty convulsions, so that there must have been an abnormal condition of the brain which was permanent, not so permanent as to paralyze the baby, or to destroy it at once, but permanent enough to give rise to twenty convulsive attacks in one day. There was chronic meningitis; there was an œdema of the brain. From that the baby may have died suddenly. It has been suggested the laryngismus may have come from adenoid vegetations, as the baby did not snore all his lifetime it is not probable there were any. The thymus gland has not been examined. That is a mistake that ought to have been corrected. We do not know whether there was the condition alluded to by Dr. Seibert or not. The manubrium sterni has not been examined to determine whether there was extensive dul-

ness or not. So I believe the possibility of coming to a correct diagnosis ætiologically does not exist here. What did the baby die of? We have not been told. Babies when they die in the attack of laryngismus stridulus will die in the first stage of that attack. Not every spasm of the glottis must be claimed as laryngismus stridulus. Laryngismus stridulus means an attack which consists of two stages, the first of which is apnœa. The baby is still a moment, and pallid, pale, then gets flushed and purple and comes out with crowing respiration. The baby may die in the stage of apnœa. I have seen a few of such cases, but when they enter the stage of crowing respiration they are all safe. With this long-drawn inspiration this is the end of the attack. When they do not get so far or when the apnœa lasts too long they either die suddenly or in a convulsion. We are not told the baby died that way.

Is it not possible that the death was due to the so-called swallowing of the tongue? There are a number of cases now on record in which a baby died suddenly by doubling-up the tongue, aspirating the tongue. Such cases have been described first, I believe, by Henning, and I believe there are a dozen cases in literature. Dr. Adam's baby was put down to take its medicine, being relatively well. The tongue may have fallen backwards in the struggle against the medicine and was aspirated into the pharynx and the larynx, there the doctor might possibly have found it if he had looked for it. So I believe that no positive diagnosis can be made in the case. It may have been a case of rachitis. There was œdema of the brain. It may have been hypertrophy of the thymus. It may have been a case of swallowing of the tongue. Rare cases will occur, even now and then; lightning will destroy life, rare though it be.

Dr. HUBER.—Dr. Blackader has asked as to the frequency of laryngismus as a symptom of rachitis on this side of the water. In my service under Dr. Jacobi, in the Vanderbilt clinic, we see laryngismus stridulus with more or less softening of the occipital and parietal bones and other evidences of advanced rachitis. Such cases are not at all infrequent, occur mostly among immigrants, and I have met them quite often in the tenement districts. As to swallowing of the tongue, I have seen four such cases, but those cases all occurred in children who were weakened by some severe constitutional disorder. The point is a new one to me that such a condition can cause death

in a healthy child. This child, however, was not in a perfectly healthy condition. Dr. Cohen calls attention to this and recommends introducing the finger at once into the mouth with the possibility of relieving an imprisoned tongue.

Dr. JACOBI.—They are not all unhealthy children. The same thing has been observed in healthy children. It is simply the construction of the tongue itself, the length and expansibility of the frænum that enables the tongue to double up.

Dr. EARLE.—I would like to ask Dr. Adams to explain just exactly these convulsions; in the first place, the seizure that he thought was laryngismus stridulus, and then the general convulsive movements later on.

Dr. ADAMS.—During the first convulsion in which I saw the child, he was lying on the bed asleep and I was in the room below. As I ran up stairs I heard this decided cooing sound. By the time I reached the room the child was blue, fixed, face cyanotic, and but a second or two when the convulsive movements began, decided clonic convulsions. Now, that was in the morning. In the afternoon while Dr. Busey and I were in the room the child, who was asleep when we went into the room, awoke and made a little movement. There was no evidence of rigidity. Very soon it had that inspiratory whoop and then the thumbs began to cross over the hands, and in that condition the child became rigid, blue, and relaxation took place. That was the convulsion which we saw and upon which the diagnosis of laryngismus was decided.

In the first place, as to the diagnosis. A very careful examination of that patient had been made several times. The child had been stripped, placed in good light and had been examined by me before Dr. Busey saw it. He saw him and thoroughly examined the cranial bones, the upper portion of the trachea and the larynx as well as it was possible to do by palpation. There was no evidence of obstruction to the breathing. The child when over the attack breathed very naturally, nothing to excite the suspicion at all, and I think that certainly Dr. Busey had had experience enough with rachitis to diagnosticate it. The fat that had accumulated was very much in favor of this diagnosis.

SACRO-COCCYGEAL TUMOR IN A CHILD
THREE WEEKS OLD; OPERATION; RE-
COVERY.*

BY F. HUBER, M.D.,

New York.

FEMALE, of Russian Polish parentage, came under my observation when but a few hours old. Mother has had eight children, healthy and without any congenital deformity. The little patient presented a swelling or rather growth, involving the sacral and coccygeal regions posteriorly, while laterally the tumor extended to the gluteal on either side. No malformation of the anus or rectum. Abundant passage of meconium shortly after birth. Posterior to the anus the skin was normal for about one-and-a-half inches, then gradually became thinned as though stretched by the tumor which was prolonged downwards for about two inches. Digital examination of the rectum demonstrated that the pelvis was not involved to any appreciable extent.

The abnormally projecting mass was evidently composed of a number of cysts of varying size, loosely adherent to the skin, except where fibrous bands attached to the deeper layers retracted the integument and gave rise to the irregular nodular character of the growth. The cystic nature of the swelling could be readily made out. The nodules were translucent and elastic, and fluctuated.

The skin was thin, translucent, of a purplish hue. Numerous large vessels (veins) ran over the surface. Palpating carefully several firm and apparently cartilaginous bodies could be made out distinctly in two of the cysts. The base of the growth was somewhat constricted, though no distinct pedicle existed. Length about four inches, width about three, apparent thickness about two inches. Diagnosis, congenital sacro-coccygeal cystic

* Read before the American Pediatric Society, Boston, May 4, 1892.

tumor (multilocular in character). Treatment, removal.

As the parents were exceedingly anxious that radical measures should be employed, it was decided to remove the tumor as soon as the umbilical stump had healed, and the child had regained the physiological loss to weight occurring in the first week (Prof. A. Jacobi's suggestion).

The mother, quite a personage in her "congregation," deplored the misfortune which had overtaken her, became melancholic and continually brooded over the condition of the offspring. To relieve the mother's mental distress, as well as the deformity in the child, the operation was undertaken February 18th, the child then being nineteen days old.

Prof. Jacobi and Dr. L. M. Silver kindly assisted, and Dr. Jos. Huber assumed charge of the anæsthetic, chloroform. As anticipated, the skin as soon as an incision was made, was found to be but loosely adherent and was very readily stripped from the growth by a process of dry dissection (with finger and blunt dissector) except where the fibrous septa between the various cysts had been firmly adherent to the under-surface of and caused a retraction of the integument. Blunt curved scissors were used to divide the firm fibrous bands. But little hæmorrhage occurred until the deeper portion of the tumor was reached. In all but three ligatures were required. The mass was found to take its origin from the coccyx, being attached by firm fibrous bands to the bone. No communication with the spinal canal was discovered.

Examining the wound it was found that a small portion of the tumor situated to the right and extending forward towards the anal region had been left. The mass was of firm consistence; a few small cysts being embedded in a more solid portion, the exact nature of which with its deeper attachment could not be made out.

The general condition of the child counterindicated any further operative measures, it was, therefore, decided to postpone the removal for a few weeks.

*A small drainage tube was inserted and the edges united with catgut. Dressing applied. Hot bottles applied; stimulants ordered; and little patient kept lying upon its stomach as much as possible. Absorbent cotton placed over vulva and anus, and changed frequently to prevent dressing being soiled. Rallied nicely in a few hours. Two days later dressing changed and drainage tube removed. The outer third healed by first intention; middle third failed to unite. As it was difficult to prevent the soiling of the dressing with urine and fæces, the ununited portion was loosely packed with gauze and allowed to granulate from the bottom. Healing complete in three weeks.

March 28th assisted by Dr. H. M. Silver, Dr. Jos. Huber assuming charge of the anæsthetic, the remaining portion of the growth was removed. The swelling was quite prominent involved the right gluteal region and extended forwards towards the rectum where its outlines were gradually lost. It was not possible to make out the deep attachments by palpation. The integument over the most prominent portion was firm, somewhat thickened, slightly pigmented and covered with a number of coarse short hairs. This area, about the size of a quarter, gradually merged into the surrounding normal skin and appeared to be firmly adherent to the growth underneath. An oblique incision about two inches long running downward and outwards exposed a few small cysts; the main body of the growth was of a different nature, of firm consistence and apparently lipomatous in character without any sharply defined capsule.

After a tedious dissection with the aid of blunt curved scissors and the finger, exposing about an inch of the rectum, it became evident that the deeper attachments involved the coccyx posteriorly and laterally on the right side, even extending a little in front. Carefully working from above to free the attachment to the coccyx an elongated cyst about three-eighths of an inch wide and three-quarters of an inch long was exposed. At first it was thought that it might communicate with the spinal canal—

accidentally punctured in the further dissection, a thick yellowish opaque fluid escaped, and its true nature was established. In this manner the attachments were slowly and carefully separated until a pedicle of about one-sixth of an inch was left attached to the top of the coccyx. A stout catgut ligature was then applied and tied close to the tumor, the portion attached to the bone being clamped. The enucleation was completed by a cut with the scissors between the clamp and ligature. A second ligature was firmly tied over the clamp, upon the removal of the latter a small artery spurted briskly, but was readily caught

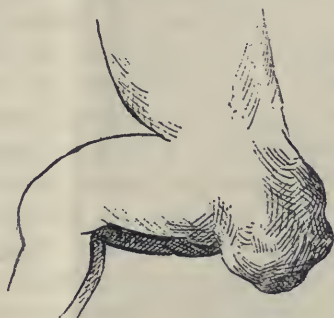


and ligated (evidently the nutrient artery of the growth).

The wound being deep and the rectum exposed, it was thought best to pack loosely, two silk-worm gut sutures being passed in deeply to bring the edges together in a few days. Antiseptic dressing applied, child rallied well and did nicely for two days. A mild erysipelas then supervened, but was readily controlled by coating the affected surface at frequent intervals with an ointment of zinc oxide and boric acid. A severe diarrhœa (fontanelles depressed) appeared on the fourth day, improved when

the iodoform-gauze was omitted and nursing stopped—the child being supported on rice and barley-water with white of egg. As small stitch abscesses had formed, Kocher's sutures were removed and the wound loosely packed with sterilized gauze. Frequent changes of dressing were required because of difficulty of preventing soiling with urine and fæces.

Congenital Tumor of Sacral Region.—*Microscopic Examination* by Dr. Sondern.—An irregularly nodular, fluctuating tumor weighing 200 grammes, of the multilocular cystic variety. The cysts varying in size from that of a small hen's egg to some only discernible by the use of the microscope, are enclosed by dense fibrous walls. The chemical examination of the fluid



contained in several of these cysts shows the following:—A slightly opalescent serous fluid. Specific gravity, 1007. Reaction, neutral. Containing principally par- and met- albumen. Serum-albumen a trace. Sodium chloride 0.01 in 1 c.c. approx. Glucose, phosphates, urea, negative.

Microscopically.—Large numbers of pavement and columnar epithelial cells, many of which showing both granular and fatty change. The presence of both varieties, probably due to the fact that the fluid was derived from several of the cysts. Also present, leucocytes, fibrin, free fat globules, several small colloid masses and granular detritus. Blood was not present. In the walls of the tumor are found many very hard, rather circumscribed masses varying in size, so-called intrinsic growths, these partially accounting for the nodular appearance of the whole. A section of one of these, about the size of a chestnut, shows the following: Numerous larger and smaller cysts, surrounded by an exceedingly dense fibril-

lar connective tissue structure, the fibrous element predominating, richly supplied with blood vessels. These small cysts are lined with columnar epithelium. One margin of the section is a part of the wall of one of the larger cysts—this being lined with pavement epithelium.

The small adjoining tumor (weight one and one half ounce) consists likewise of dense, fibrillar connective tissue, also richly supplied with blood vessels, showing besides several large lipomatous areas.

Obscure in their origin, various theories have been evolved to explain the existence of congenital sacro-coccygeal tumors. Their formation has been attributed to included foetation, germination or inclusive of a portion of the outer layer of blastoderm at the time of the closure of the dorsal laminae. In the Erasmus Wilson lectures on "Evolution in Pathology," J. Bland Sutton adduces additional evidences in support of the view that the various congenital tumors of the sacrum and coccyx belonged to four classes: 1 Sacral spina bifida (often falsely called lipomati). 2 Tumors originating in the post anal gut. These were often called congenital sacral sarcomata, and were supposed by many to originate in Luschka's coccygeal body. This structure, however, with its pedicle was really the persistent remnant of the terminal section of the gut, hence the gland and the tumor had a common origin. 3 Cystic tumors originating in the Mesenteric canal (rectal dermoids), and 4 parasitic foetuses of various degrees from a more or less perfect child to an ill-shapen, conglomeration of natural tissues, fingers, toes, bones, gut, etc.

The multilocular cystic growth constitute, the majority, and the more important tumors met with in the region. Irregularly rounded or oval in shape, they are met with as pendulous masses arising from the anterior or posterior aspect of one or both bones. The size varies from that of an egg to a mass larger than a child's head. The further growth usually corresponds with that of the infant and is generally rapid. They occur with great frequency in females, and are more often situated anteriorly to the bone causing a backward project of the coccyx. The

skin is thin, and translucent, distinctly showing the large, superficial veins upon the surface of the tumor. The attachments to the bone are more or less intimate, in some instances the coccyx is firmly embedded in the tissue, in others it may be rudimentary or even absent. The pelvic organs and genitals may be displaced in the further growth and even the abdomen cavity involved. When extensive ramification takes place in the pelvis, no pedicle is found. Exceptionally a communication with the spinal canal exists, though it may not be possible to detect it before operating.

In some instances the cysts preponderate, in others fatty or fibrous tissue constitute the main mass. Pieces of cartilage, bone and even bowel have been found.

The cysts vary in size, some are microscopic, others as large as an egg. The larger cysts contain a fluid similar to that of a hydrocele, others particularly those near the coccyx a yellowish opaque gelatinous material. The cysts are held together by a varying amount of firm fibrous connective tissue.

Dr. Alex. Ritsche, assistant at Kraske's clinic reports in "*Beitrage zur Lehre von den angeborenen Sakral-geschwülsten*," a case analogous to the one reported above. The tumor in his patient was situated anteriorly to the sacrum and coccyx and also consisted of two distinct parts, one cystic, the other fatty.

A most careful and exhaustive microscopic examination of the different portions of the growth is presented. ("*Beitrage zur klinischen Chirurgie*" redigiert von Dr. P. Bruns, Achter Band. Drietes Heft.). Three varieties of cysts are described, and three kinds of glands were met with. In the compact portions of the tumor, cartilage and smooth muscular fibres were found. Histologically the cysts were found to differ in shape, and in the character of their lining membrane. The smallest cysts mostly oval (also found in the lipoma) were lined with numerous layers of pavement epithelium. A number of the larger cysts presented well-defined epidermis with hair in different stages of development.

The majority of the cysts varying greatly in their contour, were lined with ciliated epithelium interspersed with beaker-shaped cells (Becherzellen). The presence of solitary follicles or of more diffuse adenoid structures in the vicinity of these cysts, together with beaker-shaped cells, and non-striated muscular fibres lead him to infer that portions of the growth evidently originated from the large intestines. In one of the cysts lined with epidermis quite a large section which contained the principal elements of intestinal mucous-membrane was found. In addition to the two varieties of glands mentioned, a few acinous glands similar racemose glands of the skin were detected.

The cartilaginous bodies were either round or horseshoe in shape. In a few instances a cyst was made out in the hollow of the horseshoe-shaped sections. Small islands of cartilage were found upon microscopic examination in some of the cyst walls. No trace of striated muscular fibres or nerve elements existed in the tissues examined.

Impressed by the absence of even a trace of nerve elements and voluntary muscular fibre, Ritsche concludes that these growths do not owe their origin to an imperfectly developed parasitic foetus or infrafoetation. His investigations and study of early embryology lead him to believe that congenital sacral tumors are due to an arrest (from some unknown cause) in the process of retrograde metamorphosis or involution of foetal rudiments peculiar to this region.

Many of the children affected with these growths are still-born, others die within the first few days of life; in those who survive the anomaly grows frequently with great rapidity. Spontaneous cure has resulted in some cases, from ulceration and sloughing of more or less of the growth, on the other hand death may take place due to exhaustion or septic complications.

In the treatment partial measures should be discarded. Each case must be judged by itself and in considering operative measures, the possible occurrence of a communication with the spinal canal should not be lost sight of. Excision thus far has given the best results.

NOTE ON PEROXIDE OF HYDROGEN.*

BY A. JACOBI, M.D.,

New York.

WHAT I have to say under the heading of a "Note on Peroxide of Hydrogen," I wish to be taken by you not as a contribution but rather as a warning. The enthusiasm of experimenters and the mercantile interests of drug manufacturers, particularly of those owning a patent-right of their wares, have been such a fertile source of new additions to our therapeutical treasures and incumbrances, that the relation of a few cases containing some sober observations will not come amiss. You know what is constantly being claimed for peroxide of hydrogen. It is tasteless, odorless, harmless, both externally and internally; it is positive, not a nostrum, the most powerful antiseptic known, the ideal antiseptic, strengthening, tonic, rejuvenating and much more. If but Brown-Séquard had known of it! It cures catarrh of the nose and catarrh of the throat, ozæna, hay fever, sore throat, quinsy, tonsillitis and all diseases of the throat, besides pharyngitis, also laryngitis, bronchitis, asthma, whooping-cough, consumption, diphtheria, croup, syphilis, chancre, all the eruptive fevers, skin diseases, piles, chlorosis, rheumatism, dyspepsia, catarrh of the stomach, ulcer of the stomach, heart-burn, women's weaknesses, whites, leucorrhœa, all sores, abscesses, carbuncles, ulcers, etc., which are caused by microbes.

This sort of trash is not published for you, gentlemen, who are writers and teachers, but for the immense number of unsophisticated medical men all over the country, whose anxiety for new and more effective remedies is stimulated by their relative inability to cope with the misery surrounding them. That is why the shelves of the country physician, the closet of the farmer, the stores

*Read before the American Pediatric Society in its meeting at Boston, May 14, 1892.

even of the most respectable city druggist are filled with proprietary medicines of all kinds.

What is always claimed for a proprietary medicine, is its infallibility. Here is the remedy, here is the dose. Now the only thing you have to do is to pay for it, take it, and to get well. If not, it is your fault somehow.

The dosing of medicines is of so much the greater importance, the more their efficacy is liable to depend on individual predispositions and tendencies. Iodide of potassium may produce iodism in a one-grain administration, calomel salivation in a minute dose, boracic acid may irritate a urethra instead of curing it, bichloride of mercury in high dilution will sometimes fret and irritate a diphtheritic or catarrhal mucous membrane. The attentive physician knows that perfectly well and is anxious not to risk the smallest possible chance of overdosing. It is possible that the doses as recommended by the manufacturers of peroxide of hydrogen have been too strictly adhered to by many, but I know that in a few of the cases in which I have seen the drug acting unfortunately, much less than the recommended doses had been used.† Some of my cases have been in the practice of men of the highest standing in the profession, a few have been observed in company with members of this very society.

A young man of twenty-eight, living alone in a suite of rooms, in the best possible surroundings, was taken with diphtheria of the tonsils, palatine arches and uvula. He was treated with a mild mixture of chlorate of potassium and chloride of iron for some time, then with a spray and wash of diluted peroxide of hydrogen alone. When I saw him, four weeks after the invasion, I was told that he had no fever for a fortnight, but suffered intensely from the increase of membranes all over the mouth and pharynx. His throat, mouth and lips, and particularly his alveolar

† Some of these gentlemen appear to be very sensitive. One of them who had been told that I had reported cases of occasional incompetency or even dangerousness of peroxide of hydrogen, honored me at once with a note containing the evidence more of business anxiety than of good manners.

processes posteriorly, were covered with white flakes and shreds, some film-like, some half-a-line in thickness. Wherever they were removed, the mucous membrane underneath, and the gums were hyperæmic, deprived of epithelium, and sensitive. The patient had to live on milk and semi-solid food, not being able to masticate, and was greatly worried over the persistence of his diphtheria, and his loss of time, and by business necessities. We stopped peroxide, and ordered a mouth wash and a nasal spray of lime water, the former to be used every twenty minutes. The following night he slept; next day the "membranes" were falling off, and he went out with a bottle of lime water in his pocket. He called it a miraculous cure, which title we declined to accept.

A boy of five. His nasal diphtheria had been treated with a five-per-cent. spray of ("medicinal") peroxide of hydrogen. Had been sick three weeks when I saw him. There were glandular swellings and high fever one week, but little temperature since. The lymph bodies about the lower angle of the jaw were still perceptible, but less than they were reported to have been. Still there constantly was a slight elevation of temperature. The child felt sore and was restless; had but little sleep, and could not swallow except with difficulty. Part of the inside of his cheeks was raw; part covered with whitish, greyish, yellowish flakes; these were quite thick on the alveolar processes and in his throat. The peroxide was discontinued, lime water sprayed into his nostrils and naso-pharynx every two hours, and lime water in doses of half-a-teaspoonful each administered every half hour, with the advice of holding it in the mouth before swallowing. Improvement took place at once, the irritant having been discontinued.

A similar case was that of a patient of a distinguished gentleman here present. A child in the family had recently died of diphtheria. The surviving child had been sick three weeks when I was honored with a call. The history was that of nasal and pharyngeal and oral diphtheria, with occasional improvements, and just as

many apparent relapses. The abandonment of the peroxide, and the use of lime water had the same immediate result.

Woman, of thirty-eight; a child of four years had a "diphtheritic sore throat," just before she was confined, four weeks previously. The surroundings and circumstances, top floor of a tenement house, were none of the best. A week after her confinement she was taken with what was readily recognized by the attending physician as vaginal diphtheria. In her throat she had but a few specks which readily disappeared. The vagina was treated with bichloride of mercury injections, which were discontinued because of the natural impatience on the part of the attending physician to see the patient out of danger. What he considered a mild solution of "Medicinal peroxide" (one in twenty-five) was then resorted to, and from six to eight irrigations made every day and night. Within three days the vagina looked better, many of the pseudo-membranes disappeared, but on the fourth day others—"a relapse" came, and more from day to day, until there were square inches of them, from grey to yellow, harder and thicker than ever. What, however, struck the attendant as most surprising was, that meanwhile the general condition of the patient improved. That was surely what made us afterwards suspect that the "relapses" were artefacts. The irrigations of peroxide were substituted by douches of salt water (1:130), and the patient recovered very fast.

Such cases as I have here reported, a few only of those I have seen, speak for themselves. I hardly doubt but that many of you must have made similar observations. Many of the "pseudo-membranes" which are noticed on mucous membranes treated with peroxide, are artefacts. They are the result of the coagulation of the albumen of the secretions, and the albumen (and fibrin) of the sore tissues it comes in contact with. What I have examined consisted mostly of fibrine, a few leucocytes, a very few blood-cells and epithelia. The neighborhood of diphtheritic membranes is mostly deprived of epithelial covering. It

is on this denudation of the surrounding mucous membranes that the extension of the morbid process is mostly dependent upon. Thus, whatever irritates that neighborhood, whatever irritates even mucous membrane at a distance, beside covering it with a fibrinous exudate which may *look* like diphtheritic, though far from so being, *may give rise to actual diphtheria*. The peroxide will have that effect as strong solutions of bichloride of mercury have, or nitrate of silver, or scratching, brushing, and violence generally. I, therefore, do not mean to say at all, that I attribute none, but deleterious effects to the peroxide, just as little as I am willing to speak of the deleteriousness of bichloride because injudiciousness does harm with it; deleterious in peroxide is the persistent use of it after it has rendered its service; dangerous is its property to coagulate the surface albumen of the healthy tissue as well as the unhealthy exudation; deleterious is principally the quackishness which preaches absolute harmlessness, and positive efficacy, in every stage of every case of almost the whole index of maladies in the interest of "business."

DISCUSSION.

Dr. CAILLÉ :—If there is anything that which I am familiar it is the local treatment of diphtheria, and my method has always been to adopt the mildest local treatment because I know that irritating treatment in the nasopharynx and buccal cavity will aid the spread of diphtheria. I have seen ten years ago that a strong solution of permanganate of potash aided the spread of diphtheria. That very spot which had been cauterized in that way was found to be covered by a diphtheritic patch on the following day.

In the case that Dr. Jacobi saw with me the following condition was present. A boy of six had been sick some time with scarlet fever and diphtheria. There were no dense and thick white patches of diphtheria, but it was a diphtheritic infiltration of the mucous membrane covering the pharynx and also covering the entire epiglottis. The boy was hoarse and had a well-marked, but a mild stridulous breathing, and I thought he might be develop-

ing laryngeal stenosis and that I should be obliged to intube or do tracheotomy. He had very little strength left. I was very anxious to do all I could locally to prevent the spread of the diphtheritic infiltration, and after having used the mildest treatment seven or eight days, mild solutions of boric acid, Listerine 1 to 30, and 1 to 10,000 bichloride of mercury and lime water, I thought I would try for once the peroxide of hydrogen, and I diluted the ordinary solution 1 to 8 and that was used as a spray, and a few drops were dropped into the nostril from a pipette, and it was used as a gargle. The boy liked it very much because it had no special taste, and he preferred it to the other solutions. Now twenty-four hours after having first used this solution of peroxide of hydrogen, one to eight, I noticed the following. The mucous membrane on the lips and buccal cavity which had not been affected at all assumed a deep red color, and thirty-six hours after the first employment of this chemical I noticed that this blood-red mucous membrane was covered with a whitish veil, and then I noticed beginning ulceration and a pseudo-membrane over these ulcerated spots.

Believing that the peroxide of hydrogen was responsible for the damage, at the suggestion of Dr. Jacobi its use was stopped. I went back again to the mildest treatment, and the boy eventually got well. The diphtheritic inflammation was visible for eight or ten days afterwards. The larynx did not become involved. Peroxide of hydrogen has properties which should draw our attention to it, but its action in my case was certainly injurious. If I find any suggestion as to a better way to use it I may try it again, but my feeling at present is against it.

Dr. BLACKADER:—What preparation was used? I have seen frequent sources of impurity some of which must be irritating in character.

Dr. CAILLÉ:—It was Marchand & Co.'s preparation. Perhaps some other manufacturers make a different chemical, but Marchand is supposed to make the best.

Dr. BLACKADER:—I have seen the report of five or six different specimens of peroxide that had been tested by a good man, and with the result of showing that one or two contained the full percentage of peroxide, the majority a very small percentage often, although the names were not mentioned, but spoken of as their best forms and containing distinctly salts and acids that were used in the production of the peroxide, and salts and acids that must be poisonous in themselves.

Dr. SEIBERT :—The mortality of pharyngeal diphtheria in Berlin according to Baginsky is forty-three per cent., in New City according to my last figures thirty-seven per cent. I have good cause to think that it is not any better than in Berlin. Within the last winter I have seen several children in consultation who had been treated by the peroxide of hydrogen in a dying condition. I have never used it. I have seen in adults and in children that had been treated by the peroxide in New York City, just exactly these thin white veils over the mucous membrane that looked as though a drop of milk had been spilled on the healthy mucosa, and were by the peroxide, because whenever that was taken away they disappeared without any treatment. They looked like the beginning of fresh diphtheritic membranes.

I would like to ask one question. I have seen as Dr. Jacobi has pointed out that stuff advertised all over, but I have failed as yet to see one scientific article in medical literature showing that it really does kill any germs. I have failed to observe anything of that kind by any authority that might be called an authority in bacteriology. I know of quite a number of experimenters who have made examinations as to the action of sublimate, chlorine water, carbolic acid and other well-known drugs and antiseptics upon germs. We know how they work, but I have failed yet to find one article in regard to this drug that is being so extensively used.

Dr. BUCKINGHAM :—I have used peroxide of hydrogen, the fifteen-volume solution, and it has been used in a spray in the nose or in the mouth generally three times a day. I have not heard any very great complaint from the pain caused by this, but I am bound to say that I think most of the patients who are children become hospitalized and submit to treatment they would not anywhere else. So far as the pain goes I don't think it is a criterion. So far as the action on the germ is concerned I don't know anything about it. As far as the action on the membrane is concerned it seemed to me it did sometimes lessen itself after the use of the spray, and generally comes back again and pretty soon, and my own feeling at this moment is that as far as the membrane goes it does for the time lessen it; as far as the disease goes I am uncertain as to whether it has any benefit. I have not been able to trace any bad results. I can recall cases that have been in the hospital during the whole month and did not get well and did not get any worse. I don't

think there are any more of these cases than one would find anywhere else. It is possible I used a weaker solution than we think.

Dr. KOPLIK :—I would like to mention the case of a child six years old who suffered from tonsillar septic diphtheria treated by me some time ago by mild solution of Listerine, etc. It was a case which was hopeless, but I thought I would try local treatment the best I could with mild things. I called a consultation and peroxide was advised. As soon as I began to spray with it I noticed a beefy color to the soft palate. It did clean the soft palate, but left behind this red beefy color. At the next visit I found this area of beefy denudation was covered with milky pseudo-deposit, membranous deposit. Every time I sprayed the beefy color would appear, and the child complained of a great deal of pain. My solutions were strong twenty-five per cent., and the preparation was Marchand's.

Dr. HUBER :—I don't use peroxide of hydrogen myself, but in a number of cases seen in consultation I have been able to diagnose the fact that the preparation was used by the swelled lips the eroded skin and the condition of the mucous membrane so fully described. I therefore have regarded it as rather a dangerous remedy to use. In conversation last night with one of our Boston members I was told that in one of the hospitals a year or so ago they used to coat the skin with some ointment, and even then the irritating effects were such that it was finally discarded, thus confirming the impression that we of New York have had in the use of peroxide.

Dr. EARLE :—Do you get any bad results from its use in suppurative cavities, purulent discharges from the ear, etc.

Dr. HUBER :—I do not use it at all

Dr. EARLE :—I have been in the habit of not using the peroxide of hydrogen in the treatment of diphtheria, but in the purulent discharges which have taken place in so many cases following the grippe. I have sometimes been obliged to resort to the use of peroxide of hydrogen, and the mothers very frequently have carried this along and apparently in every instance it has done good. I am prepared for what I hear to-day to find a very large number of very bad results pretty soon, because about a month ago we had an editorial in the *Chicago Tribune* giving three-fourths of a column to the use of peroxide of hydrogen. It said it had just been discovered. The

article commenced editorially claiming it would cure just about everything, that we were comparatively safe now from all germs, and went on and lauded it in the most extravagant way, and I presume the people are using it now for all sorts of things. I presume we will begin to get returns soon, and probably a little increase in practice.

Dr. JACOBI :—The films seen soon after are coagulated albumen, but the damage is done by destroying the epithelium, giving rise to new exudation, new diphtheritic deposits and to certainly more danger and discomfort. That would be the result of the application. The first films are simply coagulated albumen.

THE NECESSITY FOR MECHANICAL TREATMENT AFTER OPERATIONS FOR CLUB-FOOT.*

BY W. R. TOWNSEND, A.M., M.D.,

New York.

OF all classes of club-foot presenting themselves for treatment, none are more troublesome and difficult to manage than the cases that have been operated upon and relapsed. Many causes exist for the relapses and for imperfect results, but both in private practice and in the dispensary we see quite a number of cases where a failure to follow an operation by proper mechanical treatment is the sole cause. All writers on orthopædic surgery are agreed as to its value and necessity, yet we constantly see cases where no appliance has been used after an operation or where it has been used for so short a period as to be of little or no real value.

At the outset it must be clearly understood that whatever operation has been performed, no mechanical treatment will produce a good result if the operation was imperfectly done, and these cases give us the imperfect results, not the relapses. Bradford and Lovett state that the obstacles which prevent perfection in result are:

* Read by title before American Orthopædic Association, Sept., 1892.

Imperfectly divided tendons; imperfectly divided ligaments or plantar fascia; imperfectly stretched ligaments; incorrect relation between the scaphoid and anterior facet of the astragalus, due either to anatomical alteration of shape of astragalus or to imperfect division or stretching of the ligaments which bind these bones together in the deformity. We might also add to this list—insufficient removal of bone in cuneiform osteotomies of sole of foot, for if the foot cannot be over-corrected at time of operation, the final result will not be perfect—in rare instances the over-correction is carried too far and a new deformity is produced, such as a valgus after operation for varus, but this mistake occurs so seldom it is scarcely worth mentioning. Again, operations may be perfectly done, yet the after dressings of plaster of Paris or water-glass or leather are so imperfectly applied or padding is so badly put in that the foot is not held in the best possible position and an otherwise good result is ruined. The deformity should be over-corrected at time of operation and firmly held by the dressings, and then if mechanical appliances are kept on a sufficient length of time, the result ought to be good; but if we do away with our braces too soon, the cases will relapse.

Bradford and Lovett state that there appears to be no greater liability to relapse after complete correction by mechanical means than when tenotomy is employed, and I believe nearly all surgeons are agreed upon this point. At all ages, no matter what the operation, there are many factors present for a long time afterward which have a tendency to produce a relapse. In the congenital cases, if contraction existed in the soft parts and a simple tenotomy were done, although the division of the tendon permitted the foot to be straightened and deformity corrected, yet the shortened tissues need many months of stretching and retention by apparatus before all tendency to contraction is overcome. If the ligaments and deeper tissues were affected, same is true, and in the more severe cases where there was bony distortion, the necessity is still greater. Where the child has not walked, the

weight of the foot will often cause the toes to drop, and if the posterior muscles are stronger than the anterior, a condition of equinus may supervene even after a successful operation. All cases that have had tenotomy prior to the time they walked on the foot should have a proper brace and wear it for a year or more, as it is very important that the tarsal bones as they grow should articulate properly one with another and that the weight should be transmitted through the normal facets, and that if any new or faulty ones had formed or if distortions exist in any bones, that they be kept from exercising any influence, or as little as possible, on the final result. If the case is operated upon at a later age where bones have become markedly distorted, the necessity for retaining the foot in proper position for a long time is very urgent, for here some ligaments have become stretched and others contracted and to restore these to their normal condition is always a slow, and in some cases, almost impossible proceeding, and unless this occurs as soon as mechanical appliances are removed a relapse occurs. The faulty articulations and distortions of the tarsal bones are still greater, and more time is required to get them into a condition where the deformity will not reappear than in children who have not walked. Again, in many of these cases secondary deformities at knee and hip have occurred owing to the faulty manner of walking, and these still exist although in lesser degree than before operation, and have a tendency to cause a relapse. The condition of the muscles is also very important, for while some have been unduly stretched, others have been contracted, and much time is required for them to regain their normal tone. All apparatus used should aim to cause muscles to act in normal directions and to allow the weight of the body to be properly transmitted through the feet and thus aid in the correction of the deformity.

Where wedges of bones have been taken from the sole of the foot, as in the operation of Davies-Colley, if sufficient bone were removed at time of operation, the danger from relapse is slight and depends mostly on the con-

dition of the soft parts and muscles, as the slight motion between tarsal bones is lost on side of operation and several bones may become ankylosed together and thus prevent relapse.

In all forms of paralytic club-foot after operations, apparatus must be kept on for a long period, and in fact, many cases should never leave it off. If, for instance, the anterior group of leg muscles is atrophied causing an equinus, although as long as a brace is worn and heel is kept down, foot may remain in excellent shape, yet as soon as apparatus is removed, the lengthened tendo-Achilles meeting with no resistance from the anterior group of muscles again contracts and a new condition of equinus follows. The same is true of calcaneus, and where the operation of Willets has been done, either a brace or properly constructed shoe with raised heel and a steel tongue or heavy leather tongue in front must be always worn, or after a varying period of one to two years the tendons will again stretch and the old deformity will recur.

In both class of cases, the congenital and paralytic, the relapsed cases are very troublesome to treat, as usually the inversion is marked or of a difficult kind to correct, and the equinus causes a certain amount of twisting of os calcis that requires long treatment. Of course in correction by operation of paralytic cases of club-foot, deformity should not be over-corrected, but foot put up in normal position.

Whilst it is recognized that these views are held and taught by many surgeons, yet the large number of relapsed cases of club-foot seen yearly at the Hospital for Ruptured and Crippled suggests the importance of after mechanical treatment for a period of several years rather than of several months, and the laity and medical men should clearly understand that operations for club-foot are but the first step in a long course of treatment.

After operations for club-foot apparatus should be maintained always in paralytic cases except in rare instances, and in congenital cases until such time as the

patient can walk easily by placing the entire sole and heel flat on the ground and without inversion of the foot. If, when brace is removed, even though it be several years after the operation, the foot shows any tendency to relapse, reapply some some form of apparatus and keep it on until all deformity remains corrected. We must, however, remember that many of the so-called relapsed cases should be classed among the imperfect cures, and that in all cases cure cannot be completed until from one to three years after operation, according to severity of case and operation performed. And by advising that apparatus be kept on, it is meant that it be worn night and day. In many cases where braces are attached to the shoes, as soon as these are removed the foot assumes a faulty position, and although the damage done while the child is in bed is not as great as when walking about on the distorted foot, yet I have seen cases where relapse was due to no apparatus being worn at night. If braces are attached to shoes, other braces should be provided to hold the foot in proper position at other times, and at no time should the feet be without proper support.

Clinical Memoranda.

AN HOUR IN THE OPERATING ROOM OF THE
HOSPITAL FOR THE RUPTURED AND CRIP-
PLED, NEW YORK, OCTOBER 28, 1892.

BY V. P. GIBNEY, M.D.,

Surgeon-in-Chief.

Lorenz-Operation for Congenital Dislocation of the Hip,
Fully described in *Centralblatt für Chirurgie*, 1892, No. 31.

CASE XII.—James H., a boy, five years of age, with congenital dislocation of left hip, inches shortening. Details of operation as follows: One assistant making traction and abduction on the limb, another counter ex-

tension by means of a canton flannel bandage through perinæum and over the upper end of operating table; subcutaneous myotomy of abductors, tendons and all bands within reach; then flexion of thigh, which brings into prominence the muscle attached to the tuberischii; division of these muscles subcutaneously through a second punctured wound; firm traction and abduction brings limb down equal in length with its fellow; an incision two-and-a-half to three inches in length extending from the anterior superior spinous process vertically down the limb, exposing the fascia lata; this cut transversely, exposing the tensor vaginæ femoris and the sartorius; muscles now separated by retractors, when the capsule of the joint is exposed; finger inserted to recognize the tendon of the rectus femoris, which is divided; capsule opened and cut away throughout its anterior and inner aspects; head of the bone now fully exposed, which is flattened and shaped somewhat like a lozenge; ligamentum teres found very wide and lying loosely over the head; this ligament cut away and finger inserted into acetabulum, which is found very shallow; then with finger as guide, a sharp spoon on end of the flush, gouge cuts away a depression in the acetabulum toward the upper and outer border, leaving this border, however, intact; a good cup-shaped depression is thus made into which the head of the bone is placed, when limbs are found to be exactly of same length. Limb put up in extension and abduction at an angle of about twenty degrees with the body, catgut drain inserted, wound sewed up by continuous suture, antiseptic dressing, plaster-of-Paris reinforced by curved steel on the outer side, plaster extending from the nipples down to the malleoli. Under the plaster, however, adhesive strips applied for traction. This being the first operation of the kind required about three-quarters of an hour for its completion.

November 1st. The child has done well since operation; a little elevation of temperature yesterday, but down this morning.

Lorenz argues that the muscles which oppose the reposition of the head of the bone into the acetabulum are the long muscles running in the line of the shaft; that the subperiosteal denudation of the head of the bone and trochanter is unnecessary and adds much to the danger of the operation. He endeavors by subcutaneous myotomy

under extension and counter-extension to bring the head of the bone opposite the acetabulum before opening the joint. This author has operated four times with primary union; patients being able to support weight on the operated side in three or four weeks. No final results given.

CASE XIII.—Sadie E., three-and-a-half years of age, with femoral adduction resulting from an operation done by Hoffa, of Wurzburg, in this hospital about one year ago, for congenital dislocation of the hip. Hoffa operated at that time by a straight incision above and over the trochanter major, exposing the capsule by vertical incision, cutting away the ligamentum teres, scooping out the acetabulum in its upper portion, replacing the head and putting the limb up in moderate abduction. This case did badly from the first. Suppuration followed. The immediate result was not good; in fact, the child has been under splint treatment for nearly a year, and now has three-quarters of an inch shortening, the same as before operation, and limb is in adduction, though the movements of the joint are good.

The operation, this morning, was to simply stretch the adductors; put the limb up in abduction and hold it in plaster-of-Paris.

CASE XIV.—Morris C., a boy, about ten years, with talipes equinus; hemiplegic; extreme. Simple subcutaneous tenotomy with over-correction of deformity; plaster-of-Paris dressing. In addition to the foot deformity, he has wrist-drop, an extremely attenuated hand and forearm, but no treatment adopted for the upper extremity.

November 1st. The foot has swelled a little, but the boy has suffered comparatively little. The plaster is removed this morning, and the foot is put up in better position. No excoriations found. Up in wheeled chair.

DIPHTHERIA; TRACHEOTOMY; DELAYED REMOVAL OF TUBE.

BY JOHN L. MORSE, M.D.,

Formerly House Physician at the Boston City Hospital and at the Boston Lying-In Hospital.

NELLIE D., aged five years, entered the Boston City Hospital, November 4, 1891. She had had measles and

pertussis and had always been troubled by enlarged tonsils, which at times caused some obstruction to respiration. The breathing had been much relieved, however, by a tonsillotomy three months before.

She had had a croupy cough for a week, but had manifested no other marked symptoms until the day before entrance, when the cough increased and respiration became difficult.

Examination showed a well-developed and nourished child in good condition. Glands of neck moderately enlarged. Tonsils much swollen and nearly meeting in median line. Throat generally reddened, but no membrane seen. Respiration somewhat increased in rate, inspiration ending in a long "crow." Moderate retraction of lower intercostal spaces, with a few sibilant râles here and there.

The dyspnœa increased steadily during the night and the next morning Dr. R. W. Lovett did a low dissecting tracheotomy under chloroform, which afforded immediate and complete relief. There was but little hæmorrhage and some membrane was coughed up.

The child did perfectly well after the operation. No membrane was coughed up after the second day. The discharge was always loose and abundant, but on the third day became bloody. Lungs were not involved beyond a slight bronchitis. Had a moderate nephritis which soon cleared up. No membrane was seen in throat at any time, but tonsils remained large.

The tube was removed without difficulty at noon of the sixth day, and the child breathed quietly through the wound. She did well until evening when she began to choke up, and, as dyspnœa steadily increased, the tube was replaced at midnight. At this time there was little or no breathing through the mouth, and the secretion was all discharged through the wound.

On the eighth day the tube was again removed, but had to be hastily replaced in about two hours during a fit of extreme dyspnœa brought on by coughing. The discharge continued bloody, but no internal granulations were made out at this or any other time.

On the night of the eleventh day the tube was closed while the child was asleep, but respiration immediately ceased. A little later the tube was removed without waking her. Respiration became shorter and shorter; she woke up, and finding the tube gone, immediately became frightened, and dyspnœa became extreme. This was

tried several times but always with the same result. At this time the difficulty seemed to be a collapse of the anterior tracheal wall, which was much increased as the child became frightened.

On the fourteenth day an unsuccessful attempt was made to introduce an intubation tube and the tracheal tube had to be replaced.

The next afternoon the tube was removed while she was much interested in play, and before she realized it she was talking, laughing, and raising mucus through the mouth. She did perfectly well until she went to sleep. Then she began to breathe shorter and shorter, finally stopped, changed color, woke up, took a long breath, went to sleep again, and so on. These symptoms were much exaggerated by lying down. The difficulty seemed to be due partly to a collapse of the anterior tracheal wall and partly to faulty innervation of the larynx. As the child was becoming exhausted, the tube was replaced at a late hour, but removed again early in the morning. The bloody discharge ceased at this time.

The tube was worn at night only for the next five days, but was not replaced on the night of the nineteenth day. The child slept but little, however, and was very much exhausted.

All the symptoms gradually improved, however, and she was able to sleep the greater part of the twenty-third night in a reclining position without the tube. The tube was not again replaced; the wound was closed by granulations on the twenty-fifth day, and entirely healed a week later. During this time the tonsils had slowly diminished in size, but still remained large. She was then able to sleep quietly all night, lying down, although respiration was somewhat noisy at times. She was kept for three weeks longer as a precautionary measure, and then discharged well.

ULCERATIVE INTERTRIGO IN INFANTS.

BY GEORGE CARPENTER, M.D., Lond. M.R.C.P.,

Senior Physician to Out-Patients at the Evelina Hospital for Sick Children, London.

THE milder forms of intertrigo are well recognized where there is redness of the affected parts with a weeping surface, an affection found in fat babies, in the groins,

the folds of the abdomen and thighs, the axillæ and neck folds, when due attention to cleanliness has not been paid.

The variety I now describe has not been so fortunate in attracting attention. My remarks now more specially apply to the groins and neighborhood.

Infants, from the irritation occasioned by the above state of affairs, keep the thighs firmly flexed upon the abdomen with the result of confining the acrid secretions. Superficial erosion then ensues quickly followed by deep ulceration of the opposed surfaces. Large ulcers of irregular and indurated outline with foul grey and unhealthy looking bases, sometimes gangrenous, are next seen. Deep ulcerations occasionally occurs in the axillæ. Such ulcerations which originate from simple causes I have seen diagnosed as diphtheritic intertrigo or a congenital syphilide. If this malady does not receive prompt attention the child dies from collapse or septicæmia.

In the early stages washing with soap and water and subsequently dusting with oxide of zinc and starch powder will be sufficient. The following is a satisfactory method of dealing with the ulcerated variety. The child is placed on his back in the cot. Two arm holes, large enough to pass over his clothing, are made of broad, stout webbing and united by similar material for a chest piece, equal to the breadth of the patient. A flat iron with a perforation at either extremity for tapes is suitably covered and passed behind the patient through the arm holes, and is tied to the sides of the cot. Extension is obtained by fixing the ankles to the sides of the cot by a close hitch made of a flannel roller. The ulcers can now be easily dressed with either ung. acidi borici or ung. Hydrarg., ammon. dil., spread on lint cut to the exact size of the sores.

If the child is at the breast the ulcers should be similarly dressed and a piece of lint covering all and secured by a flannel spica prevents apposition, which is the important point to be avoided.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, Thursday, November 10th, 1892.

WILLIAM P. NORTHRUP, M.D.,
Chairman.

F. M. CRANDALL, M.D.,
Secretary.

Nephritis not Recognized Before Autopsy.—Dr. H. D. Chapin presented two sets of kidneys. The first were taken from the body of a baby, aged three months, which died of pneumonia, no renal trouble having been recognized. At autopsy, besides the lesions of pneumonia, he found one kidney the seat of nephritis and containing very large crystals of uric acid, while the other contained in addition to the uric acid crystals, a stone the size of a pea.

In the second set one kidney was the seat of a large pyonephrosis with inflammation of the surrounding kidney tissue, while the other kidney was atrophied to the size of a nut. There was no occlusion anywhere in the urinary passages. This patient was aged seven months and died soon after it was brought to the hospital, without a diagnosis having been made. There had been swelling of the hands and feet, but urine was passed.

Dr. Chapin thought it likely nephritis was frequently overlooked, and the question arose whether it would not be proper to pass the catheter and examine the urine in all cases, especially in pneumonia.

Dr. Jacobi thought the nephritis in these cases had preceded any acute process elsewhere ; that in the first case it preceded the pneumonia, as was evident from the presence of a calculus.

Discussion on Adenoid Growths of the Pharynx in Children.—Dr. F. H. Bosworth opened the discussion by presenting his personal views on diagnosis, symptoms and treatment. He referred to the almost exhaustive character of the first paper written upon the subject of adenoid growths of the pharynx, which was by Wilhelm Meyer, of Copenhagen, and based on one hundred and two cases.

One criticism to be made upon the views then held, and still largely existing, was that adenoid growths were regarded as a local disease, sufficient attention not being given to the general condition leading to the local manifestation. That general condition he called lymphadism, a state which, as had been well said, would result in scrofula if carried one degree farther. The adenoid growths of the pharynx caused considerable local, and indirectly, general disturbance. Interference with normal nasal respiration stood out prominently. He ventured the opinion that in seventy per cent. of all cases of nasal catarrh in children the cause was adenoid growths, the next frequent cause being deflected nasal septum. Usually, however, a deflected septum caused trouble not until the patient had approached more nearly maturity. The interference with respiration disturbed the general health, caused loss of appetite, and interfered with sleep. There was great danger of the adenoid growths leading to involvement of the hearing apparatus. Indeed, a large percentage of the cases had some trouble with the auditory apparatus and hearing.

A child suffering from adenoid growths could be recognized usually easily enough. There was an appearance of the nose having become broadened and thickened, the look was vacant and stupid, the voice was dead from lack of vocal vibration. If the general appearance did not reveal the story, one could use vaseline spray—injecting it into one nostril it would come freely out of the other in the form of a spray if there were no occlusion. The rhinoscope would reveal the condition, but it could not be employed on the majority of children under six years of age. The symptoms produced by adenoids would tell the story.

Dr. Bosworth asked if there were any normal enlargement or projection of the tonsil, and replied that he thought not. Since in some children there was no projection of the pharyngeal or faucial tonsil, might we not fairly assume, when any enlargement or projection existed, that it was not normal? According to the degree of en-

largement, he accepted it as evidence that the child was suffering from lymphadism. Recognizing it as evidence of a constitutional taint, it taught him that one's whole duty had not been done on simply removing the morbid growths.

As soon as nasal breathing and other symptoms were present, one should remove the local growths. But that was not all. Constitutional treatment was also called for, and one should give considerable doses of the iodide of iron—say ten drops to a child under three years, and half a teaspoonful or more to a child of five.

The growths must be removed, and it could be done by different methods, some of which were better than others. Dr. Bosworth showed the instruments used by different operators, and made some criticisms upon them. There were different forceps, the finger nail, the curette, the snare, and some applied a caustic to the base of the growths. Dr. Bosworth personally preferred the snare, and showed the manner of its application. He did not find the procedure difficult ; it was safe, caused no undue hæmorrhage, required no anæsthetic as a rule, and could do no harm. For growths which could not be reached through the mouth, the snare could also be passed through the nose, and there cocaine could be used with advantage. If an anæsthetic were used in operating through the mouth, give chloroform in preference to ether. The forceps and other instruments were open to criticism, the curette of Gottstein was deserving of commendation, but it had to be quite sharp in order to scrape away the growth. He did not believe the finger nail could be kept in condition to answer the purpose. Iodide of iron should be continued three to eight months or longer after the local operation.

Pathology with Demonstrations.—D. W. H. Park described the normal tissue in the vault of the pharynx, which was very rich in lymphatics, and then that of adenoid growths, which really were only an exaggerated condition of the normal state. There was nothing pathological in the adenoid growths except they were out of place ; the

tissue looked seemingly like normal lymphatic tissue in any part of the faucial tonsil, intestines, and elsewhere ; it was simply a hypertrophy of the lymphatic elements in the mucous membrane, and only did harm through its peculiar position. The three chief evil consequences were, interference with nasal normal respiration, prevention of sound sleep, involvement of the hearing by intrusion upon the eustachian tubes, either closing them or giving rise to inflammation.

Method of Removing and Subsequent Treatment.—Dr. F. E. Miller discussed this phase of the subject, which he said necessarily involved some repetition of what Dr. Bosworth had gone over. Speaking of instruments, he said that Bosworth's snare was good, but required much skill. He believed that Gottstein's curette would come to take the place of all other instruments in the removal of adenoids at the vault. It was recommended for quickness; no necessity for an anæsthetics ; caused less cicatrization ; did less injury to adjacent structures; the technique could be acquired by any physician. He cleansed the nostril three times a day by the spray with Dobell's solution before operating. He gave cod liver oil and hypophosphites.

Methods in Use on the Continent.—Dr. J. P. McEvoy told of the methods of removing adenoid growths from the pharynx in use at the different clinics in Europe. Schnitzler, of Vienna, gave preference to the forceps of Lowenberg and the curette of Gottstein. Stoerk used the laryngeal knife ; Muratz, of Heidelberg, preferred the forceps of Meckel ; Rosenthal, of Berlin, preferred Gottstein's curette; some gave an anæsthetic; others did not.

The subject being open for general discussion, Dr. Northrup inquired how diffused adenoids should be removed, and Dr. Chapin remarked that nearly all the children at his clinic seemed to have adenoids, and the question arose, when to operate ?

Dr. Beverley Robinson thought Dr. Bosworth's view regarding the constitutional taint in these cases was not novel. As to methods of removing adenoid growths, all methods had been unsatisfactory in his hands, and in the

hands of others, judging by his own observation, until the Gottstein curette was introduced. Up to then the most satisfactory procedure which he had found was removal by the finger nail. He did not believe disastrous consequences followed the presence of these growths to anything like the extent stated by some, nor did he believe it so frequently necessary to remove them. As a rule, the finger nail would scrape away sufficient so that child could breathe through the nostril, which was the important point. He knew of a distinguished rhinologist and laryngologist in New York who relied nearly altogether on the finger nail.

Dr. D. H. Goodwillie thought we should exercise great care in operations on adenoids. Pedunculated growths could often be removed by the finger nail. Where this would not answer the purpose he used a small forceps, say Hooper's, passing it down alongside the finger and appreciating exactly what he was doing by the touch. Sometimes the growth had to be reached through the nostril, and there he passed a sort of double catheter and wire snare, the wire being guided over the growth by the finger introduced into the mouth; then the catheters, through which the wire passed, were separated and the growth thus brought away. It was best to operate under anæsthesia, and to hold the child in position that blood, etc., would escape through the nose.

Dr. Northrup had been much interested in this subject, and related some personal experience. In one, a boy's deafness disappeared at once after removing adenoid growths; in another hearing had been affected two years and disappeared after the adenoids had been removed; in another the three tonsils were enlarged, the hearing was badly affected, the fat boy's mental and physical state was such that he was called "slob" by the family, but he had been well and bright since tonsillotomy. The evil of enlarged tonsils was illustrated in a case in which he succeeded in removing one of the enlarged tonsils smoothly; in operating on the other the instrument slipped and a part of the tonsil was left. The child afterward

had scarlet fever and the portion of tonsil remaining was red and angry looking for weeks, while the other part of this tonsil and the entire smooth tonsil on the other side were pale and uninflamed.

Dr. Goodwillie inquired whether anyone present had seen adenoids in adults.

Dr. McEvoy and Dr. Mierhoff said they had, and Dr. Mierhoff recommended the nitrous oxide as an anæsthetic in these operations.

Dr. Park knew of a child dying of secondary hæmorrhage after removal of adenoids with forceps, although, it might have been prevented had the mother followed instructions and looked after the child.

Dr. Bosworth knew of another case in which death had taken place after the use of forceps on adenoids, and there the doctor tried, but was unable, to stop the hæmorrhage. It was evident that caution should be observed. He did not believe that enlarged tonsils ever disappeared of themselves, and he held the same view of adenoids. They left shrunken and jagged masses in after years. He had used the Gottstein curette on diffused adenoids.

Dr. F. A. Castle had found chloride of gold of value in addition to the iodide of iron for the constitutional state.

Current Literature.

I.—HYGIENE AND THERAPEUTICS.

Barratt, J. O. M.: **A Case of Poisoning by Carbolic Acid, with Recovery.** (*Brit. Med. Journ.*, Aug. 27, 1892.)

A sickly child, aged four years, swallowed a quantity of carbolic lotion containing 180 grs. of carbolic acid. The child, when found, was lying unconscious on the floor. It was given some salt and water at once, and shortly afterwards vomited. It showed some signs of returning consciousness, but soon relapsed and a quarter of an hour later was completely comatose, with dilated pupils, insen-

sitive corneæ, and a barely perceptible pulse at the wrist. Hypodermic and rectal injections of brandy were given and the stomach washed out with tepid water and olive oil subsequently injected. The next morning the temperature was 102° and the child had vomited several times. It made an uninterrupted recovery. The first portions of the urine were passed into the bed. A specimen strained eighteen hours later was light yellow, free from albumen, did not darken when allowed to stand and did not yield more than the normal quantity of indigo.

Carpenter, George, (London): Unusual Effects from the Use of Atropine and Homatropine Eye-Drops in Infants. (*The Lancet*, 1892, ii., 307.)

Four cases are reported to support the following observations:

1. The pupil not infrequently remains for a long time undilated, sometimes for hours. The reaction is often tardy and then the pupil may not dilate to its full extent. This is quite apart from iritis, iritic adhesions, or what not.

2. Physiological symptoms in infants seldom occur; whether from absorption by the ocular conjunctiva or passage down the lachrymal duct and so on, or possibly both causes are in operation.

Crutchfield, Eugene L. (Baltimore, Md.): Artificial Respiration in Asphyxia Neonatorum. A Plea for Harvey L. Byrd's Method. (*Med. Bulletin*, Phila. 1892, xiv., 348.)

Harvey L. Byrd's method is as follows: The physician places his hands under the middle portion of the back of the child, with their ulnar borders in contact, and at right angles to the spine. Extending his thumbs, he carries forward the two extremities of the trunk by gentle, but firm pressure, so that they form with each other an angle of about 45 degrees in the diaphragmatic region. Then the angle is reversed by carrying backward the shoulders and the nates. An assistant may aid by supporting the head. By alternating these movements, Prof. Byrd has succeeded in effecting resuscitation when other methods had failed, and when so much time had elapsed that the case would seem hopeless to most practitioners.

Crossland, J. C., (Zanesville, O.): Veratrum in Scarlet Fever. (*Cincinnati Lancet-Clinic*, 1892, xxix, 420.)

The writer reports the case of a girl, aged five years,

suffering from scarlet fever, to whom the following mixture was given :

R	Extr. veratri viridi fl.	℥ xxxvi
	Kali chloratis	grs. xl
	Glycerini	℥i
	Aquæ	℥ii M

S. Give a teaspoonful every two hours.

Each dose was followed by cramps, retching and rectal tenesmus. Desquamation begun in five days and the patient made a rapid recovery, as well as two other cases in the same family to whom no veratrum had been given. It is, however, the opinion of the writer that a few heroic doses of veratrum will marvellously modify scarlet fever, both in duration and severity.

Rawikowitsch, M. J., (Kiew): The Manual Treatment of Nocturnal Incontinence of Urine. (*Arch. f. Kinderh.*, 1892, xiv, 194.)

Report of eight cases treated by the method recommended by Dr. J. Csillag with six recoveries. The treatment consists of massage locally to remedy the weakened or insufficient action of the detrusor and sphincter vesicæ muscles.

Feer, Emil: Appearance of the Diazo-Reaction in the Urine of Tuberculous Children Treated by Koch's Lymph. (*Jahrb. f. Kinderh.*, Leipzig, 1892, xxxiii, 281.)

It was interesting to observe if cases which had failed to give the Diazo-reaction would give it when treated by Koch's lymph, since the tuberculin in larger doses does to some extent increase the tuberculous processes. The urine of a number of children who were undergoing treatment by injections of tuberculin was treated regularly before and after the injections of seventeen children who were affected with tuberculosis of the bones, joints and lymph glands, of whom only two had before given the Diazo-reaction, sixteen gave the reaction after the injections.

Luton, Ernest: Treatment of the Green Diarrhœa of Infants. (*Mal. de l'Enf.*, Paris, 1892, x, 438.)

It is recommended to stop all food for twenty-four hours and administer filtered water which may be given in the nursing bottle. This treatment is not new but is efficacious.

De Saint-Germain: A Death from Chloroform. (*Mal. de l'Enf.*, Paris, 1892, x, 392.)

M. De Saint-Germain, in a letter to the editor reports a death from chloroform, the first case in his career.

There was no autopsy. He recommends that there should be in each hospital a student whose special duty should be the administering of chloroform.

Barbier : On the Presence of the Bacillus of Diphtheria in the Secretions and in the Mucus of the Mouth. (*Mal. de l'Enf.*, Paris, 1872, x, 395.)

The streptococcus is found even in the absence of false membrane in the secretions and in the buccal mucus while the Klebs bacillus has been demonstrated thirteen or fourteen days after the disappearance of the membrane. The presence of septic agents co-existent with the diphtheria bacillus makes necessary not only the antiseptic treatment of the throat and nose but also vigorous antiseptic precautions during and after the tracheotomy.

Gallipe : Troubles of Dentition. (*Revue Générale de Médecine, de Chirurgie et d'Obstétrique*, September 21, 1892, No. 38, p. 301.)

The author thinks dentition is without any complication in healthy children. Troubles occurring during its process are not due to teething itself, but accompany it in nervous or otherwise unsound infants. Dental anomalies have a deep significance. They are stigmata of neuropathic origin. Children most subject to troubles of dentition later present other phenomena of the neuropathic diathesis, as modification of the hard palate, of the maxillary arches, or of the teeth themselves.

II.—MEDICINE.

Yeoman, Stanley : Case of Acute Yellow Atrophy of the Liver; Necropsy. (*The Lancet*, 1892, ii, 422.)

The patient, a girl, aged ten months; was first seen on February 23d, 1891. At that time nothing abnormal could be detected except a well marked jaundice, which appeared the day before. The next day the jaundice had increased in intensity, there was some hæmorrhage from the gums, and several petechiæ on the back. The area of hepatic dulness was diminished. The child sank rapidly and died in the afternoon of the next day, the jaundice having increased, as well as the hæmorrhages from the gums, and the number and extent of the petechial spots. The necropsy showed six large extravasations of blood on the back, fifteen small spots on the left leg, two on the

right leg, two on the left arm, and seven on the right arm. The liver was very small, slightly wrinkled and flabby. Weight seven ounces. The stomach and intestines contained a fair amount of blood, and there were slight extravasations in the coats of the intestines. The report on the microscopical examination of the liver was: "The sections show no trace of hepatic tissue, but simply granular detritus." The red blood corpuscles were very granular and irregular, and showed no tendency to form rouleaux. The white blood cells were greatly increased in number. There were crystals of tyrosine and cholestérine.

Woods, Hiram, (Baltimore, Md.): Diphtheritic Conjunctivitis: Report of Two Cases with the Bacteriologic Study of the False Membrane. (*Med. News*, 1892, lxi, 197.)

The following propositions concerning pseudo-membranous conjunctivitis seem justifiable:

1. There are two varieties: one of the same nature as primary diphtheria; the other apparently a sequel of many and widely different pathologic conditions, having no relation to diphtheria. "Plastic conjunctivitis" seems the most appropriate term for the latter variety.

2. The classical distinction between diphtheritic and membranous conjunctivitis, based upon the presence or absence of infiltration in the tissues of the lids and ocular conjunctiva, is inadequate.

3. The only absolute proof of the diphtheritic nature of a pseudo-membranous conjunctivitis is the demonstration of the Loeffler bacillus, or, later, the occurrence of paralysis, or some other sequel of diphtheria. Clinically, the presence of constitutional symptoms is essential to such a diagnosis.

4. The cause of the pseudo-membrane in plastic conjunctivitis is not certainly known, and probably is not always the same. In some cases, at least, there seems good reason to attribute it to the invasion of streptococci, an infectious disease, or catarrhal conjunctivitis, or traumatism, or scrofulous habit, or some other influence lowering the resistance of the tissues and paving the way for infection.

5. Plastic conjunctivitis may be more dangerous to the eye than a pseudo-membranous inflammation undoubtedly diphtheritic; experience showing that the danger is in direct ratio to the degree of lid and conjunctival infiltration.

Roy, Philip S.: (Washington, D. C.) A Case of Chorea in a Negro. (*Medical Record*, 1892, xlii, 215.)

The case of chorea under observation is a full-blooded negro child, seven years of age. Dr. Irving C. Rosse, the neurologist, has seen the case and confirmed the diagnosis. It is a very marked case.

Park, William Hallock (New York.) Diphtheria and Allied Pseudo-Membranous Inflammations. A Clinical and Bacteriological Study. (*Medical Record*, 1892, xlii, 122 and 141.)

Conclusions.—The results of previous investigations, with the addition of that brought out in these studies, seem to force on to us the conclusion that there are two great divisions of pseudo-membranous inflammations, one caused by the Klebs-Loeffler bacilli and the other by some form of streptococci. The few cases in which the pneumococcus of Fraenkel or other cocci seem the cause naturally fall in the second division.

The first is, from beginning to end, a local process, and its lesions are due to the effects of the poison found by the bacilli in the pseudo-membrane. It is dangerous at all periods of life. The second is also, at first, a local lesion, but may at any time become a general infection. It is peculiarly liable to cause broncho-pneumonia in children. Both diseases are frequently associated together. Both are directly contagious, though in different degrees.

These two diseases caused by different bacteria and differing in so many points, should no longer be called by the same name. The name diphtheria will probably be agreed upon by all for those cases in which the Klebs-Loeffler bacilli are present, whether alone or associated with other bacteria.

For the several divisions some name will have to be agreed upon; whether the streptococcus will be found to be in with a majority the cause that the name streptococcus diphtheria can be applied to it, only further investigation can determine. Perhaps at present the term pseudo-diphtheria will be acceptable.

In all cases where the diagnosis is in doubt, bacteriological examination should be made, because:

1. A correct diagnosis should always be sought for.
2. Without it all attempts to learn from statistics the worth of special forms of treatment and methods of prevention are well nigh useless from the frequent incorrectness of the diagnosis. The fact that during four months less than one-third of the cases sent to the diphtheria

wards of the hospital had true diphtheria, is sufficient proof of the difficulty of making a clinical diagnosis.

3. It is a great help to prognosis and rational treatment in the more severe cases and enables us to take measures more effectually to prevent the spread of the contagion.

4. It is certain, can frequently be made immediately, and always within twenty hours.

Huddleston, John H.: (New York.) **Three Cases of Malaria in Children Treated Successfully by Methylene Blue.** (*Medical Record*, 1892, xlii., 1891.)

The patients were sisters, aged respectively ten, seven and five years. For two weeks they had suffered every second day with chills and fever. Their spleens were apparently not enlarged. Cover-glass preparations of the blood showed the plasmodium in that from the oldest child.

Methylene blue was given, one capsule containing a decigram being given to the oldest every three hours, to the next every four hours, and to the youngest every five hours. This was continued regularly for four days except during sleep. The urine, colored blue, was passed without difficulty, and in sufficient amount in every case. All medicine was stopped after the fourth day, the blood was again examined and nothing abnormal noted. Since then there has been no relapse.

Boose, L.: (Milwaukee, Wis.) **Lesions Characteristic of Syphilis in the Fœtus and Infant at Birth.** (*Journ. Am. Med. Assoc.*, 1892, xviii, 611.)

The lesions found in still-born children, and those that succumb soon after birth, may be divided into two groups: the superficial lesions and the pathological tissue changes affecting the different viscera and bones.

The lesion of the skin most commonly met with is the bullous syphilide or pemphigus, and frequently coincides with profound visceral changes that rapidly reach a fatal termination. The erythematous syphilide or roseola may be present at birth. The vesicular syphilide is a rare lesion of inherited syphilis, but may be associated with the early stage of the bullous eruption.

An aborted syphilitic fœtus is usually macerated, but other evidence of the disease must be found before it can be pronounced syphilitic. While there may be cutaneous lesions, the most constant and characteristic lesions are to be found in the viscera and bones. These lesions are most readily recognized in the liver, the spleen, the lungs

and the thymus; but may be seen in the pancreas, kidneys and brain. A syphilitic liver is always enlarged, has the peculiar yellow hue and semi-transparency of flint, it is harder and its elasticity is increased, and small, opaque granulations are scattered through the parenchyma. There is extensive proliferation of fibro-plastic tissue enclosing the granular bodies. The spleen is more or less enlarged, due to simple hypertrophy with thickening of the capsule. In the lungs there are indurated nodules or spheroidal tumors, varying in size from a pea to a filbert. The lungs may be indurated, due to a proliferation of the interstitial tissue, or the condition of lobular hepatization. The pleura is always thickened and inflamed. The syphilitic change of the thymus gland consists of the presence of pus in the parenchyma, without any apparent change in the color or size of the organ. The pancreas presents changes analogous to those of the liver. Peritonitis is an indication of inherited syphilis, and effusions into the serous cavities are frequently met with.

The osseous system affords the most constant and characteristic lesions of the disease. The long bones of the extremities, except those of the hands and feet are most commonly attacked. The lesion is an osteo-chondritis, resulting in a necrotic condition at the line of junction of the cartilage with the bone. Osteophytes are sometimes found, deposited around the diaphysis of the long bones, and beneath the periosteum of the scapula and iliac bones.

In children that survive, the lesion presented at birth will rarely justify a positive diagnosis of the disease. In still-born children and those that live but a short time, lesions characteristic of the disease may generally be found in the bones and different organs, particularly the liver, spleen and lungs.

Baker, Albert R. (Cleveland, O.): *Infantile Cataract.* (*Journ. Am. Med. Assoc.*, 1892, xix, 278.)

The following conclusions are offered:

1. Infantile cataracts should be operated upon early, within the first year, if possible.

2. In pyramidal and zonular cataracts in which vision cannot be improved to $\frac{20}{20}$ after fully dilating the pupil, removal of the lens is to be preferred to iridectomy.

3. Fluid cataracts are best removed at once by linear extraction.

4. Soft cataracts including zonular and capsular, are best treated by first breaking up the lens thoroughly, and

removing a few days later by the combined linear extraction and motion operation.

5. Simple decision is sufficient in very young infants, unless nystagmus should be present.

6. Only one eye should be operated upon at a time.

7. There are a few cases in which it may be advisable to extract one lens for distant vision, and make an iridectomy on the other eye, so that a certain amount of accommodation may be preserved for our work.

Thompson, J. Hilton, (Bolton, Lancashire): A Case of Infantile Lactation. (*The Lancet*, 1892, ii, 308.)

A healthy, well-developed male child, born at full term, showed about fourteen days after birth well-marked swelling of the mammary glands. The skin over the glands was congested; on pressure a thin, yellowish milky fluid escaped drop by drop from the nipples. About two days after the condition was noticed, a small, badly-defined hardness could be felt in the left breast external to the nipple; moderate pressure caused no pain; the hardness remained for two days, gradually becoming less manifest. Lactation ceased in the right breast in five days and two days afterwards in the left. The general condition of the infant appeared to be unaffected.

Russell, Charles P. (Utica, N.Y.): The Eczemas of Infancy and Childhood, with Special Reference to Etiologic Dietetic Considerations. (*Med. News*, 1872, xli., 258.)

From what has been said in this paper concerning the nature and etiology of eczema in infancy and childhood, the following conclusions may be drawn :

1. A large proportion of infantile eczemas have their basis in inherited constitutional taint or dyscrasia.

2. In a certain proportion, and a fairly large one, anæmia and malnutrition act as predisposing causes, impressing upon the disease a tendency to chronicity and rendering it less responsive to local treatment.

3. Eczemas originating during the first year of life are usually more obstinate than those arising later, and in them constitutional treatment is very important.

4. The eczemas occurring during the early years of childhood, between two and six years of age, generally take on the more typical vesicular type. They are rather vesicular or erythematous than pustular, and external irritation plays a relatively more important role in their production.

5. The internal predisposing cause in these eczemas is oftener some acquired condition than an hereditary one.

6. Dietetic, in addition to alterative, treatment is more important in the strumous eczemas of infancy. Cod-liver oil, malt, and iron iodide are the best constitutional remedies, either alone or in combination to suit individual conditions.

7. In the internal treatment of the vesicular and erythematous eczemas of early childhood, remedies addressed to the corrections of acquired states and functional derangements of the chylopoietic system are more often indicated. Malnutrition and anæmia must first be removed by simple, easily-digested food.

Dyspepsia, gastric irritation, intestinal catarrh, hepatic torpor and deficient kidney-action must all be treated and removed by appropriate remedies, before any striking effects can be obtained from local applications.

Brunton, James (Galashiels, N. B.): Diabetes Insipidus in Children caused by Hot Weather. (*Brit. Med. Jour.* 1892, ii., 735.)

Four cases are reported. The disease occurs in India in the hot season, previous to the bursting of the monsoon, and lasts from some weeks to months; it does not seem to cause any permanent injury to the constitution of the child.

In spite of a high fever of a constant type, with the passing of an immense quantity of water, the little patient keeps in fairly good general health, and presents nothing abnormal in any organ. The exact etiology of this disease is still vague. This diuresis of a large quantity of limpid urine of a specific gravity little above that of ordinary water seems to be synchronous with the fever. The treatment in every case is the administration of the tincture of belladonna pushed to complete dilatation of the pupils. This cures both fever and diuresis, which pass off, never to recur or, in some cases, to return next hot season.

Rachford, B. K. (Cincinnati, O.): Purpura Hæmorrhagica. (*Med. News*, 1892, lxi., 433.)

The details of two cases are given, aged respectively nine and eleven years; and attention is called to the following clinical features of the cases reported:

I. The course and duration of the disease was not, I am sure, influenced by the medicines given. Case II. ran

its course like one of the self-limited, zymotic diseases, the disease terminating under the same hygienic conditions as those under which it began.

2. Both of these cases occurred in delicate children with bad hygienic surroundings; in the room with the first case there was a case of malignant diphtheria, and in the second case there was a bad tuberculous family history.

Pounds, T. Henderson (Derby.): A Case of Milky Ascitic Fluid. (*Brit. Med. Jour.*, 1872, ii., 629.)

When first seen, she was ten years old and suffering from increasing abdominal fluid distention, with rapid wasting and persistently high temperature, 103° to 107° each night. She had been gradually getting worse for two months past. It was a case of tuberculous peritonitis and was treated by abdominal section. Fully a gallon of fluid of the color and consistency of rich creamy milk came away. This fluid coagulated spontaneously, was reduced almost transparent by the addition of ether, and otherwise agreed physically with chyle. The mesenteric glands were found enlarged to the size of a cricket ball and firmly fixed to the lumbar spine; the iliac and lumbar glands were also greatly enlarged and resembled a number of walnuts strung on a string. Miliary tubercles were sparsely scattered over the intestinal surface, which was greatly congested. The abdominal cavity was irrigated with hot water, dried and a drainage-tube inserted.

The patient made an uninterrupted recovery, was placed on iodide of iron and cod-liver oil, and was sent to the sea-side. On returning a month later, it was found that she had got quite fat and was otherwise in excellent health. The iliac and mesenteric glands could still be felt on deep pressure, but were greatly diminished in size. Microscopically the fluid contained numerous nucleated corpuscles and a molecular basis, and in other respects was identical with chyle.

Hounsell, F. C. W. (Chudleigh, S. Devon.): An Unusual Number of Lumbrici in a Child. (*Brit. Med. Journ.* 1892, ii., 631.)

The patient, a boy, aged six years, had been ailing and out of sorts for some time; losing flesh, with constant hacking cough, and, latterly, night perspiration. Pain in the abdomen existed, also mucus in the motions, but no blood; appetite capricious, with picking of nose and grinding of teeth.

Santonin powders and castor oil, brought away ninety-seven pink, ordinary round worms (*lumbricoides*). The child made a speedy recovery and was well in about ten days.

Thomas: Simple Hypertrophy of Bronchial Glands. (*Mal. de l'Enf.*, Paris, 1892, x., 264.)

In affections of the bronchial glands tuberculosis is not the only thing to be kept in mind. Acute diseases of the respiratory organs and certain infectious diseases may produce an hypertrophy of those glands, particularly in feeble and scrofulous individuals. This hypertrophy may be perfectly recognized by physical and functional signs.

Beclere: Gonorrhœal Rheumatism in Infants. (*Mal. de l'Enf.*, Paris, 1892, x., 278.)

Two cases are reported, one in a child of five-and-a-half years; one in a female infant of twenty months. In the first the gonorrhœa followed an attempted rape. In this case there was a radio-carpal arthritis with a teno-synovitis of the extensors. In the other case there was a tibio-tarsal arthritis in the course of a gonorrhœa of accidental origin.

Schlichter, Felix (Vienna): Contribution to the Etiology of Diphtheria in Nurslings. (*Arch. f. Kinderh.*, 1892, xiv., 129.)

A careful study of twenty-one cases occurring in the Foundling Asylum in Vienna. The first case was observed June 21, 1888. This was plainly brought in from without since no case had occurred in the division of the hospital since before 1884, and from the fact that at the time of the birth of the child the mother was suffering from severe diphtheria. The infant had been quickly separated from the mother and brought into the Foundling Asylum, where it developed diphtheria when eleven days old. Seven months later the second case appeared in the same division in one of the wet-nurses. This was believed from various circumstances to be due to the first case. All of the remaining cases occurring in two other divisions of the institution are attributed to a case which had occurred three years earlier rather than to the carrying of the infection by the slight intercourse of the woman, or by the physicians.

The disease appeared through immediate contact of it in but two cases; one a wet-nurse whose foster-child had the disease and whose own child had not, and the other,

the first case, in which the infant doubtless acquired it from the affected mother. One case followed upon another while separated by several rooms, and at intervals of weeks and months. Often the last to have suffered from the disease would have been long out of the asylum before the next to have it was admitted. To account for the fact that so small a number as twenty-one infants should be affected in an institution through which seven thousand pass yearly we must believe in some special receptability, the more especially, that it is proven that immediate contact is not necessary, hence we have the infection from rooms, atmosphere and surroundings. Although it is not now possible to prove in a satisfactory manner in what way the individual predisposition occurs, yet it would seem to be proven, that diphtheria in nurslings has no connection with puerperal or any other sort of disease in the mother other than diphtheria; that diphtheria in nurslings, as in later life, can only ensue upon a diphtheria which has gone before; farther than the individual predisposition in all probability occurs through the lessening of the power of resistance as a result of general feebleness or of weakening disease.

Stamm, Carl: The Etiology of Rhinitis Pseudo-Membranacea. (*Arch. f. Kinderh.*, 1892, xiv, 157.)

In three cases of this disease which were studied, two were typical; no general symptoms of diphtheria; no albumen in urine; no swelling of glands; the patients were slightly ill. A grayish membrane and muco-purulent secretions from one or both nostrils were found in both. The third case only differed in that for a short time a fibrinous membrane was seen on the tonsil. In all three cases the Klebs-Loeffler bacillus was found. Experiments bacteriologically and experiments with the cultures on animals proved the nature of the bacilli. It calls attention to the necessity of bacteriological examination in all such cases, no matter of how apparently light a nature they may be.

Pomoeski, J. (Posen): Experimental Contribution to the Etiology of Melæna Neonatorum. (*Arch. f. Kinderh.*, 1892, xiv., 165.)

An infant born after somewhat protracted labor in which forceps were used, appeared normal in all respects; breathed well; cried loud. About twenty-four hours later was quiet and pale, and took but little nourishment. A few hours later vomited a half teaspoonful of black blood.

Vomiting continued, and with the black fluid blood, coagula of blood were vomited and passed by rectum. Respiration was quickened, the temperature sank rapidly and after repeated vomitings of blood, in all a half of a cup full, collapsed and death followed.

Autopsy: The case was one in which either through the extraction by forceps or solely by the pressure during birth, there had been an injury and hæmorrhage of the brain which had destroyed the process of the crura cerebelli ad pontem et ad corpora quadrigemina, the greater part of the right hemisphere of the cerebellum and also the inner surface of the fourth ventricle with its vaso-motor center.

The result of a number of experiments upon dogs, in brief, showed that by lesion of crura cerebelli ad pontem et ad corp. quad., of the nucleus dentata, by destruction of the vaso-motor center, by cutting through the ala cinerea there occur disturbances of circulation in lungs and stomach which consist of hyperæmia and hæmorrhage and lead even to severe ulcerative processes. The dogs which died showed always great lowering of temperature and dyspnœa.

Hertzka, Hermann, (Vienna): Contribution to the Study of Peliosis Rheumatica. (*Arch. f. Kinderh.*, 1892, xiv., 199.)

The author argues for a distinction of the above disease from what has come to be described by later authors under the common name of purpura hæmorrhagica or morbus maculosus. He reports a classical case. The disease began with the character of an infectious fever with vomiting, violent headache, temperature of 41°C. , delirium and great prostration. Severe brain symptoms lasted from the beginning of the disease for six days. The brain symptoms later continued in equal intensity at the same time with a lowered temperature. The fever was a characteristic symptom, being of a remittent type. After the highest temperature of the first two days, 41° and 40.5°C. it fell rapidly with distinct collapse of the patient, and remained for forty-eight hours between 37.2° and 38.5° . In this time the eruption of the hæmorrhages ended definitely. Then certain joints began to swell and to be painful, the temperature rose slowly until between the sixth and eighth day, when most of the larger and smaller joints were affected, and then it remained for four days between 38.19 and 40.1° . Later was a distinctly remitting type of fever, mornings 37.8° - 38° , afternoons and evenings 39° - 40° . This lasted for eleven days. With the diminution of the

swelling and painfulness of the joints, the fever fell until a normal temperature was reached. Without doubt the whole course of the fever, with the exception of the high initial fever, followed the affection of the joints and depended upon that. The development and spread of the cutaneous hæmorrhage followed the description of the symptoms in peliosis rheumatica in that they occurred almost exclusively in the extremities. Hæmorrhages also occurred in this case about the eyes and there were numerous small petechias in the conjunctiva and in the hard and soft palate.

Dubreuilh, W., (Bordeaux): Disseminated Suppurative Idrosadenitis. (*Mal. de l'Enf.*, Paris, 1892, x., 277.)

A case of a young girl who had presented since fourteen years repeated eruptions on different parts of the body of small papules of the size of the head of a pin, at the outset chiefly seated in the dermis, later superficial and pustulous at their summits. Small pigmented cicatrices succeeded to these. The microscopical examination showed that the point of departure of these lesions was in the sweat glands and the affection of the sebaceous glands was secondary.

Breton : A Case of Glio-Sarcoma of the Dura-Mater. (*Mal. de l'Enf.*, Paris, 1892, x., 434.)

A child of five years, two months before entrance in the hospital had had measles followed by a bronchitis and some symptoms of meningitis. Since eight days there had been vomiting and an obstinate constipation. Emaciation since two months and for the same length of time some difficulty in respiration through the nose from which there was a muco-purulent secretion with occasional streaks of blood. On examination there was found to be a complete paralysis of the left side of the face, ptosis and superficial ulceration of the cornea of the left eye. The vision in this eye appeared completely lost. There was swelling of the left parotid region. The soft palate was pushed downward and forward and with the finger could be recognized a semi-fluctuating mass, quite tense, and almost flush with the base of the tongue, the lower end of which could not be reached. During the examination the dyspnœa became so urgent as to demand tracheotomy. Deglutition was almost impossible. Death five days after admission in convulsions.

Autopsy : A glioma of the dura mater had perforated the base of the cranium, invaded the parotid, with a pro-

longation into the pharynx which had occasioned such attacks of suffocation that the tracheotomy became necessary.

Gaston Paul, and Vallee Charles: Contribution to the Study of the Spleen in the Infant. (*Mal. de l'Enf.*, Paris, 1892, x., 397.)

A study of the anatomy, physiology and pathology of the spleen. Under the head of semeiology is said: the percussion is often misleading, palpation alone is true and exact. The percussion is difficult, subject to errors; presence of the liver, emphysema; presence of the colon of the stomach. To outline the spleen the subject is seated with left arm raised, strong percussion in a line from the axilla to the ant. sup. spine of the ilium; percussion in horizontal lines from the nipple and from the umbilicus to the vertebral column. We can be sure of having an hypertrophied spleen only when it can be felt below the false ribs. For this palpation the subject should be on his back, legs flexed and spread apart, head moderately lowered and all the muscles relaxed. Although the spleen becomes easily enlarged in the infant, simple diarrhœas causing an hypertrophy, yet it is always necessary to consider it as a symptom of importance. Every enlarged spleen in the infant may be considered as indicating either a state of malnutrition or some infection. The presence of hypertrophy is more important for the prognosis, which it makes more grave than for diagnosis which it often complicates.

M'Phedran, A. (Toronto): Diphtheria.—Death from Embolism of Basilar Artery. (*Canadian Pract.*, 1892, xvii, 454.)

The following case will prove of interest on account of the unusual complication that caused the death. Grace M., aged 12, became ill with pharyngeal diphtheria on May 30th, the last attack was a moderately severe one, but by June 4th she was convalescing satisfactorily, the throat having cleared. At three o'clock on the morning of the 5th she took nourishment, and expressed herself as feeling very well, desiring her nurse to lie down as she herself was going to sleep. A few minutes later she breathed deeply and by the time the nurse could reach her bedside she was unconscious. Then coma deepened and she died at 9 A.M.

At the autopsy a firm white embolus was found lodged at the bifurcation of the basilar artery; its origin could

not be ascertained. The heart was not examined, but neither it nor the kidney had shown any signs of disease.

Burnett, Charles H. (Philadelphia): Observation of a Case of Acute Purulent Otitis Media; Cerebellar Abscess and Death in Three Weeks. (*Intern. Med. Mag.*, 1892, i, 800.)

When first seen on February 10th, 1892, the patient, a girl, five-and-a-half years old, presented marked cerebral symptoms, following an acute otitis media, which had occurred three weeks previously. An abscess of the brain was diagnosed, but its precise location was not determined before death. On February 11th, an incision was first made over the mastoid, and the mastoid antrum opened, followed by free gouging of the bone into the mastoid cells. These were found to be filled with cheesy pus. An inch trephine-opening was then made, the centre-pin being placed an inch-and-a-quarter above and the same distance behind the external auditory meatus. As soon as the dura was exposed a Horsley's dural separator was passed downward and slightly forward, until it struck the ridge between the anterior and posterior surface of the petrous bone. Then it was passed into both the anterior and middle fossa of the skull. No pus was found. Then the dura was incised and the separator passed between the brain and dura for some distance, the result being negative. The temporo-sphenoidal lobe was also explored with a negative result. Owing to the condition of the child it was not deemed wise to trephine over the cerebellum. She recovered well from the ether, but gradually sank and died at 9 P.M. on the same day.

Autopsy: Only the brain was examined. While removing the brain an abscess in the right hemisphere of the cerebellum burst through the thin cortex that was left, and discharged about two fluid ounces of odorless pus. On the posterior surface of the petrous bone a communication existed with the middle ear. The tracks of the punctures into the temporo-sphenoidal lobe were perceptible as small lesions in cross-sections. No bleeding or other damage had been caused.

Church, Archibald, (Chicago, Ill.): The Early Diagnosis and Early Treatment of Acute Anterior Poliomyelitis. (*Cincinnati Lancet-Clinic.*, 1892, xxix., 519.)

Without going into details regarding the muscle groups usually involved, it may be said that the cervical and

lumbar enlargements of the cord are the preferred locations for the central lesion, and drop wrist and drop foot the most usual result, with pronounced tendency to contractures and flexion at the knee, hip and elbow. The limb is rarely so completely involved as to result in a permanent fluid-like appendage. The essentials for an early diagnosis are : a slight fever, local tenderness, flaccidity of muscles and a failure to respond to a faradic current strong enough to cause contraction in the sound limbs. The tendon reflexes are abolished also very early, but as they are difficult to obtain in infants their investigation has not been insisted upon.

If one is fortunate enough to make the diagnosis during the fever, salicylates or mercury may be advisable. At this time the child should be kept as much as possible on the side or face, and very mild sinapisms to the spine with brisk catharsis seem indicated, as well as other measures of proved value in myelitis. After this stage the greatest help can be afforded in the way of preventing deformities by maintaining normal positions and relations in the affected extremities. The next item of importance is to maintain the nutrition of the paralyzed muscles until the trophic influence of the cord is restored, that it may find all conditions favorable for its usually much impaired activity. This is to be accomplished, except in the muscles whose central apparatus has been completely destroyed by the disease, by means of massage, frictions and electricity, for which it is their only indication. Frequent sponge bathing is also beneficial. The use of strychnia can only be of value by its tonic action and its physiological effect on the cord. Any subnormal condition of the general health, and any dyscrasia, lack of hygienic surroundings and of proper diet should receive early and persistent attention.

MacKeen, R. A. H. (Cow Bay, Cape Breton) : Aneurism of the Aorta in a Child of Four-and-a-half Years. (*Med. News* 1892, lxi., 272.)

The patient, a child, aged four years and nine months, was first seen in the summer of 1889. The first symptom was a continuous hacking cough, which began the preceding spring. The child had failed somewhat in strength and suffered from shortness of breath.

Inspection showed a pulsating swelling in the first intercostal space, just to the left of the upper extremity of the sternum. The pulsation was distinctly expansive, with a slight thrill, most distinct at the lower and outer

part of the tumor. The breathing in the left lung was free and not interfered with, except over the surface of the tumor, where there was absence of respiratory murmur. In this region a systolic murmur could be heard. The left radial pulse was somewhat behind the right in time. The voice was not interfered with. A diagnosis of aneurism of aorta was made.

At the beginning of the next winter the patient had a pneumonia in the upper lobe of the right lung. Though the crisis was apparently reached in due time the lung did not close up, and soon underwent degeneration. Death resulted in two months. No autopsy.

Jones, Allen A. (Buffalo, N. Y.): Right Hemiplegia and Aphasia following Diphtheria in a Child. (*Med. News*, 1892, lxi., 467.)

The patient, a girl, eight years old, had a severe attack of diphtheria, but made an apparently good recovery. Suddenly there appeared a complete right-sided hemiplegia and ataxic aphasia. She was not unconscious at any time. The usual evidences of pharyngeal paralysis existed. No cardiac bruit was detected. The patient's mentality seemed sluggish for a few hours subsequently to the attack, but thereafter was normal. Sensation was normal. The patellar reflex was very weak and alike on both sides. No headache. No pain.

In two days she was able to extend but not to flex the leg. Motor power gradually returned, first in the leg and thigh, then in the hand and arm, lastly in the face and pharynx. In six weeks she had entirely recovered from the paralysis, but she remained weak in mind and body, and has always spoken slowly since her illness.

Cline, Louis C. (Indianapolis, Ind.): Catarrh of Children and the Importance of Early Treatment. (*Four. Am. Med. Assoc.*, 1892, xix., 481.)

An analysis of his cases shows that hypertrophied turbinates, adenoids in the vault, follicular pharyngitis, and enlarged tonsils are very liable to follow diphtheria, measles and scarlet fever, while the exfoliation of the epithelial coat or the purely catarrhal variety, is more likely to follow repeated colds in the strumous or scrofulous children.

Constitutional treatment with tonics and cod-liver oil is indicated in cases where the general health is impaired.

The local treatment in the purulent variety consists in some mild alkaline solution to keep the parts clean of the muco-purulent discharge, followed by some slight astringent. In those cases of glandular hypertrophy, unless seen in the beginning, nothing short of surgical interference and a thorough extirpation of the offending structure will effect a cure.

Macphail, Donald: Child with a Very Large Spleen. (*Glasgow Med. Journ.*, 1892, xxxviii, 403.)

Jessie F., aged two years, was recently brought on account of swelling of the abdomen, obviously due to an enlarged spleen.

The abdomen is swollen all over, but more markedly on the left side. Palpation and percussion show that the left side is occupied by the enlarged spleen. There is now a strip of clear percussion along the margin of the hypochondrium, but a fortnight ago the area of dulness reached fully half an inch above the margin of the ribs. The line of dulness then ran obliquely to the right, curving downwards an inch beyond the umbilicus and running down to the pubes. Now the line runs through the umbilicus to about half an inch beyond it, and thence in a circle to a little beyond the left anterior superior spine. On palpation the whole surface is firm and smooth; the sharp anterior edge of the spleen can be caught between the fingers all around its full edge, and the notch can be felt a little above and to the left of the umbilicus. Even firm palpation and free handling cause no pain, and there is no feeling of friction at any part.

Nothing abnormal can be felt in the right side. No enlargement of the liver can be made out, nor any enlarged glands or other tumor. There is no evidence of syphilis in the parents. With regard to the diagnosis, Dr. Macphail said that there was nothing to suggest amyloid disease, and that by exclusion he had come to the opinion that the cause of the splenic enlargement was rickets. Dr. Finlayson thought that the only possible doubt as to the diagnosis in this case was as to whether it might not be a case of leukæmia. He understood, from Dr. Macphail, that no examination of the blood had been made; the chance of anything of importance being found was extremely minute, but still he thought this should be done. The proper treatment was clearly by general remedies for rickets.

III.—SURGERY.

Groner, F. J. (Grand Rapids, Mich.): Spina Bifida; Excision; Recovery. (*Med. Rec.*, 1892, xlii., 214.)

The patient was a child seven month old, and operated on September 10, 1890. The tumor was small at birth and had gradually increased until at the time of operation it was the size of an adult's closed fist. It was in the lumbar region of the spine and caused a great deal of nervous irritation. Chloroform was the anæsthetic used. Dissection was carried down to the base of the tumor, which was transfixed, tied and cut off. Leakage occurred; to stop this I passed a hare-lip pin through the stump and applied the figure-of-eight suture. The integument was drawn firmly over the pedicle, and the head of the pin was allowed to protrude from the wound. The pin was removed in forty-eight hours. There was not primary union of the wound, but the child made an uninterrupted recovery. On July 4, 1892, the father reports the child "fat and perfectly healthy."

Parker, Francis L. (Charleston, S. C.): Extraction of a Safety-Pin from the Larynx with Mackenzie's Forceps. (*Med. Rec.*, 1892, xlii., 214)

A boy aged five years accidentally swallowed an open safety-pin. The pin entered the larynx, and for a time caused the most alarming symptoms of asphyxia. Loss of voice, with great hoarseness, followed. Two days later, when seen for the first time, there was loss of voice, stridulous breathing, and, though the expression of the face was anxious, the boy seemed comfortable. Under chloroform a foreign body was detected in the larynx with the finger, and it was removed with one of Mackenzie's forceps after three attempts. It proved to be a medium-sized safety-pin, one inch in length. The next day the patient returned home, and gradually regained his voice, without any complication, in about a month.

Kennedy, James (San Antonio, Tex.): A Case of Amputation of the Thigh for Tuberculosis of the Tibia; Recovery. (*Med. Rec.*, 1892, xlii., 214.)

The patient was a boy aged eleven years. The disease followed an injury and the acute period was of three weeks' duration, although that limb had given him trouble for a year. Incision, washing out and free drainage of the abscess cavity doing no good, the discharge of pus increasing and the patient growing steadily worse, it was

decided to remove the necrosed bone. At the operation, however, the destruction of not only the bone, but of the soft parts, was so great, that it was thought wiser to amputate, which was done at a point three inches above the knee-joint. The patient's condition began to improve almost from the very moment of the operation, and passed on to a recovery which was both rapid and satisfactory.

Halsted, T. H. (Syracuse, N. Y.): Adenoids in the Naso-Pharynx in Children. (*Med. Rec.*, 1892, xlii., 183.)

He gives an excellent résumé of the subject. From two State institutions he examined 268 children for adenoids. Total number of children with adenoids, 63, or 23.7 per cent; associated with enlarged tonsils, 32, or 50 per cent.; with some anterior nasal obstruction, 29, or 46 per cent.

Heaton, George: A Series of Cases of Congenital Malformation of the Large Intestine. (*The Lancet*, 1892, ii., 310.)

Case 1, was an example of imperforate anus, with probable absence of rectum and descending colon. Artificial anus made in left groin. Patient lived six weeks. No post mortem. Case 2, was one of imperforate rectum, with penile fæcal fistula. After incision the mucous membrane of the bowel was brought down and sutured to the skin. The child recovered. Case 3, was one of imperforate anus, with malformation of the large intestine. It lived only a few hours, and had other deformities. Case 4, was one of imperforate anus, with vaginal fæcal fistula. Was seen for the first time on the seventh day. She made a good recovery. Case 5, was interesting as illustrating an arrest of the cæcum in its passage from the umbilical region into the right iliac fossa. She made a good recovery.

Brook, W. F. (Swansea, S. Wales): Two Cases of Retro-Pharyngeal Abscess in Infants. (*The Lancet*, 1892, ii., 364.)

The first case was a female child aged one year and seven months. She was brought to the hospital with difficulty of breathing and swallowing, and a "lump" in the neck. The abscess was opened from the outside by making a small incision along the posterior border of the sterno-mastoid. She made a good recovery. The second case was a male child aged six months. This was opened by a vertical incision through the sterno-mastoid muscle,

which was very wide and thin. He made a good recovery.

In both these cases there was a history of irritation and inflammation of the nasal or naso-pharyngeal mucous membranes, and in neither was the abscess associated with cervical caries or of tonsillar origin. The analogy between this form of retro-pharyngeal abscess and sub-acute or chronic ischio-rectal abscess, so common in feeble and cachectic subjects, is very striking. Both occur in weakly and debilitated subjects, and seem to result, apparently, from slight irritation of the adjacent mucous membranes, and in each case, too, it is in the submucous tissue that the suppuration occurs, and not in glands (or, at all events, those demonstrated in naked-eye anatomy) which drain the corresponding area of mucous membrane.

Bingham: The Expectant Treatment of Hip-Joint Disease. (*Canadian Pract.*, 1892, xvii., 411.)

1. Hip disease, when seen in the early or first stage, is often amenable to mechanical treatment.

2. Although in the early stage the bacilli may frequently be absent, the joint should be treated from the beginning as though they were invariably present.

3. An important cause of the extension of the disease is the irritation due to pressure between head of femur and acetabulum.

4. This is best prevented during the acute period by rest in bed, with fixation of the body by a long splint to the sound side, and longitudinal and transverse extension by weights to the diseased joints.

5. As soon as the early symptoms have *quite* subsided, the patient should be fitted with a long traction and fixation splint, and not allowed to rest for one moment on the diseased joint until completely cured.

6. After indications of softening have become apparent and persistent, expectant treatment is no longer indicated.

Hubbard, Thomas (Toledo, O.): Intubation versus Tracheotomy. (*Cin. Lancel-Clinic*, 1892, xxix., 307.)

We believe that we have in the operation of intubation, as developed by Dr. O'Dwyer, a substitute for tracheotomy in the great majority of cases. This is true not only on account of its intrinsic merits, but also because it is more readily popularized with the people. At the same time we must not be blind to its shortcomings, nor hesitate to recommend the reserve operation, which latter

may, with one grand stroke, as it were, transform defeat into success.

Weeks, John E. (New York): *The Surgical Treatment of Trachoma.* (*Four. Am. Med. Assoc.*, 1892, xix., 285.)

Experience has led to the following conclusions, viz.: (a) In the first stage of trachoma the most efficient mode of surgical interference is that of expression, combined with superficial scarification and the introduction of a germicide by the use of a brush. (b) In the second stage, where surgical interference is advisable, the treatment known as "grattage," combined with expression in some cases. Canthotomy or canthoplasty, if necessary, gives the most satisfactory results. (c) The operations as above advised convert a contagious into a non-contagious condition, and the patient may be admitted to wards for ordinary surgical cases without fear of infection.

Wheaton, S. W.: *Unusual Termination of a Case of Cancrum Oris.* (*Brit. Med. Jour.*, 1892., ii., 682.)

The patient was a female child, aged three years, who was admitted with cancrum oris of the right side. The child's progress was unusually good, and a month after admission a small scar only remained on the mucous membrane of the cheek, and the child appeared in perfect health, when, four days later, it vomited without apparent cause. Within three days the child died.

1. The clinical and pathological evidence shows that death was due to the sudden onset of septicæmia, causing general encephalitis and tubular nephritis. 2. It is a good illustration of the process of "secondary infection," in which putrefactive organisms obtain an entry through the lesion caused by a primary but independent disease, and cause septicæmia or pyæmia. This process is most frequently seen after acute fevers, such as typhoid, in which an entrance is obtained through the intestinal ulcers, and in scarlatina and diphtheria, in which the ulcerations in the throat are the point of entry. 3. The gravity of the prognosis in cancrum oris, the patient not being out of danger even after apparently complete recovery. In the case in point, the organisms had probably remained latent in some thrombosed vein in the cheek, and when the clot began to break down they were discharged into the circulation.

4. The presence of extensive nephritis without albuminuria or œdema—a condition of great interest and not

so uncommon as generally supposed, and which may be compared with the rarer condition in which general œdema exists without albuminuria. It would seem that some lesion of the vessels of the skin is a necessary factor in producing albuminuria, and that unless a simultaneous lesion of the cutaneous vessels is present, as, for instance, in scarlatina, albumen may be absent from the urine in cases of nephritis.

Mill, G. Symers, (Arbroath.): A Case of Polydactylous Hand. (*Brit. Med. Journ.*, 1892, ii., 630.)

It was a male child and there were six digits on the left hand, there being two little fingers. The adventitious finger was well formed, and similar with its fellow, with the exception of its attachment, which consisted of fibrous tissue and skin. The finger could be moved in any direction; it was attached to the ulnar side of the little finger. Of the six children the mother had, four had more than the usual number of fingers; all of the adventitious fingers being to the ulnar side of the little finger. Her first two children had normal hands; the third had four little fingers, two on each hand; the fourth had two little fingers on the left hand; the fifth had four little fingers, and the sixth was the patient above described. Her brother's wife had a child with the condition of webbed fingers.

Black, W. G.: Dermoid Cyst of Ovary in a Child Aged Seven-and-a-half Years; Successful Removal. (*Brit. Med. Jour.*, 1892, ii., 683.)

The child, aged seven-and-a-half years, was admitted with lameness of the right leg and abdominal enlargement. The right leg was flexed at the hip, adducted, and rotated outward; it was ankylosed at the hip-joint; the muscles were flaccid and wasted; occupying the centre and right lower half of the abdomen was a tumor the size of a child's head; the tumor extended two inches to the left of the umbilicus and one-and-a-half inches above it; it was freely movable; dull on percussion, smooth on the surface; it was surrounded by a resonant area, and the hand could be placed between it and the kidney. There was a distinct wave of fluctuation through it on percussion; there was no pain and no elevation of temperature; no rectal or vaginal examination was made.

On May 1, 1892, the belly was opened by median incision and the tumor removed; the pedicle, consisting of the right broad ligament, was transfixed and ligatured with

carbolized silk. The tumor consisted of a single cyst about the size of the foetal head at term ; it was full of purulent, creamy-looking, sebaceous matter, and contained several long white hairs, growing from its inner surface. The child made an uninterrupted recovery, and left the hospital on the nineteenth day after operation.

Power, D'Arcy : Ununited Fractures in Children. (*Am. Jour. Med. Sci.*, 1892, ciii., 531.)

The treatment of fractures in children, then, resolves itself into the following common-sense rules :

Diagnosticate the fracture as early as possible, and in every case keep the fragments in perfect apposition.

After the fragments have been secured, see that the apposition is maintained by exercising careful supervision, and, when necessary, by the readjustment of the retention apparatus.

As in cases of adults, so in children, the most successful treatment of fractures depends upon attention to details. In cases where non-union has occurred, the prognosis in regard to subsequent union is very bad. In such cases the ends may be resected, and the fracture treated by securing perfect immobility of the bone for a long period.

If, however, there has been much wasting of either end, it will, I think, be found that resection is useless. In the bones of the upper extremity the resulting fibrous union, judiciously aided by a light artificial support, will occasionally enable the patient to pass his life in tolerable comfort.

Under similar circumstances in the lower extremity, however, it will often happen that amputation alone can afford the patient relief from his miserable condition.

Hutton, W. M. : Notes of a Case of Compound Fracture of the Skull. (*Brit. Med. Jour.*, 1892, ii., 683.)

The patient was a boy aged eleven years, who was struck on the forehead and fractured his skull. The scalp was enlarged and the aperture in the skull also enlarged by means of a chisel and gouge forceps. The patient made a good recovery. The following points seem to be specially interesting in the case : (1) Rapidity of onset of symptoms in so young a boy ; (2) the occurrence of such symptoms with a lesion over the frontal region, which is said to receive severe injuries without giving rise to severe symptoms, and more especially in a child ; (3) slowness and irregularity of the pulse for days after the operation.

There was no cardiac lesion. Attention is called to the growth and firm union in less than a month of a comparatively large piece of bone, and also to the rapid healing of the wound under an ice-bag.

Lovett, R. W. (Boston): **A Clinical Classification of Hip-Disease.** (*Boston Med. and Surg. Jour.*, 1882, cxxvii., 354.)

(a) Destructive hip-disease, due to a florid tuberculosis of bone or to an acute infectious osteomyelitis.

(b) Painful hip-disease, due to the ordinary form of fæcal bone tuberculosis, where irritation surrounds the foci and the tendency is to purulent degeneration.

(c) Painless or quiet hip-disease, due to the fibroid form of fæcal bone tuberculosis, where there is little irritation surrounding the foci and a tendency to the deposit of fibrous tissue.

(d) Transient or ephemeral hip-disease, due, probably, to a focus of tuberculosis, which is rapidly absorbed, or is so far removed from the joint that it causes little or no synovial irritation.

Brown, W. H.: **Cerebral Abscess following a Scalp Wound.** (*Brit. Med. Journ.*, 1892, i., 1195.)

The patient, æt. three years, sustained a wound over the left eyebrow, so slight that the parents did not call in surgical aid. Eight weeks later, as the wound had not healed, the child was brought to the infirmary. A small granulating wound led down to bare bone. The child appeared quite well. A few days later a small portion of bone came away. Next day there was a flush round the wound. The child had a rigor and a well-marked right sided convulsion. The wound was opened up and a probe passed within the cranium, bone was removed and the dura mater bulged forward into the opening. On being laid open about two ounces of pus escaped; the convulsions ceased, but the child died comatose two hours later.

Treves: **Sarcoma of Buttock in a Lad.** (*Brit. Med. Jour.*, 1892, i., 1194.)

It was a case of sarcoma of the buttock in a lad, æt. eighteen. He had ligatured the internal iliac artery by the intra-peritoneal method. This operation was followed by a remarkable shrinking of the growth and disappearance of the lameness and intense pain. The patient remained able to walk for about ten months after the operation and died at the end of fourteen months. The case was reported

to show the effect of the ligature of a main artery upon a sarcoma not amenable to treatment by excision.

Bentlif, P. B., (Jersey): Foreign Body in the Trachea; Tracheotomy. (*Brit. Med. Journ.*, 1892, i., 1359.)

The patient was a boy, æt. ten years, who got a prune stone in the trachea. At first there was a paroxysm of coughing if he moved about or talked much, but during the interval he felt nothing at all. A laryngoscopic examination gave negative results. On auscultation over the upper part of the trachea, a croupy sound was heard, more marked during expiration. On palpation he complained of pain on the left side of the larynx, just opposite the cricoid cartilage, but nothing could be detected. Occasional rhonchus was heard in the chest. Chloroform was administered and tracheotomy done without delay. During a paroxysm of coughing after the trachea was opened, the stone was expelled. A tube was inserted and taken out in twenty-four hours, and the patient made an uninterrupted recovery.

Williams, J. W., (Baltimore): Vulvo-Vaginitis in Children. (*Maryland Med. Journ.*, Baltimore, 1892, xxvii., 705.)

Conclusions.—1. Vulvo-vaginitis is quite frequent in children, occurring in about one per cent. of all dispensary cases.

2. Most cases are infectious and in all probability of gonorrhœal origin.

3. Its gonorrhœal nature has not yet been absolutely proven by bacteriological research.

4. The most frequent mode of infection is indirectly from the mother, or some other member of the family, by means of the general use of the same toilet articles, or by the children playing with each other's genitals. Occasionally the infection occurs from a case of ophthalmia, and in rare cases from infection at birth or from criminal action.

5. The affection runs a very prolonged course and usually does not produce much constitutional disturbance.

6. In rare cases it may lead to serious internal troubles, as salpingitis and pelvic-peritonitis.

7. The diagnosis between the infectious and non-infectious varieties is only possible by means of the microscope; as a matter of precaution all cases should be treated as infectious.

8. The most efficient treatment consists in extreme

cleanliness on the part of the child and its attendants, and local applications of a solution of nitrate of silver.

9. In children's hospitals, such cases should be isolated.

Deaussoir, Mlle.: Statistics of Tracheotomies at the Hospital for Infants' Maladies Since 1886. (*Mal. de l'Enf.*, 1892, x., 229.)

Year.	Number of Tracheotomies.	Deaths.	Recoveries.	Per Cent.
1886	356	297	59	16.57
1887	365	307	58	15.89
1888	360	310	50	13.88
1889	261	202	59	21.60
1890	296	227	69	23.27
1891	256	175	81	31.64

Lavrand: Adenoid Tumors; Two Successive Recurrences in One Case and One in Another. (*Rev. Intern. d. Rhin., Otol. et Laryng.*, Paris, May, 1892, 74.)

A child of seven years was operated upon by a rudimentary curetting in 1885. There was an improvement for several years. In 1889 the cavity was completely obstructed and the child suffered from dyspnœa and attacks of asthma. Curetting was done under chloroform; but believing that any parts remaining would atrophy, it was not insisted upon to remove all of the growth. In 1891 a second recurrence. Great masses were removed and the mucous membrane scraped. Since that time the health has become excellent. In another child a year and a half after the removal of a portion of the growths, it was necessary to repeat the operation. Conclusions: 1st. Adenoid vegetations which have not been completely removed may grow again in some cases. 2d. What is left after partial removal may not atrophy for months after. 3d. A careful and complete curetting is necessary to guard surely against recurrences, and for that an anæsthetic is required.

Cherallerean: Cyst of the Iris. (*Mal. de l'Enf.* Paris, 1892, x., 276.)

M. C. presented before the Ophthalmological Society a boy of fourteen who had two cysts of the left iris. An iridectomy had been done at the age of three for congenital cataract; two years ago the reporter had extracted the crystalline cataract. Finally the child suffered a violent blow on the eye. Two tumors of the iris developed, symmetrically placed one within, the other without the break made by the iridectomy. Intervention was called for on account of the pain and the peri-corneal injection.

Bokai, Johann? (Buda-Pesth.) My Results with O'Dwyer's Intubation. (*Jahrb. f. Kinderh.*, Leipzig, 1892, xxxiii., 302.)

From August 1, 1890, to August 1, 1891, intubation was performed in 109 cases. Up to January 1, 1891 intubation was performed parallel with tracheotomy (the cases were not selected for intubation); from the 1st of January intubation was done in every case. The only exceptions were septic cases and those in which the croupous processes had already extended to branches of the smaller bronchi. Of 109 cases 37 recovered, *i. e.*, 34 per cent. In the two years before the tracheotomized croup cases had given 16½ per cent. of recoveries, 78 of 109 cases were diphtheritic croup, 31 non-diphtheritic. Of the former 24 recovered, 30 per cent. (with tracheotomy in these cases, in the two years previous there had been 14½ per cent. of recoveries). Of the 31 idiopathic croup cases, 13 recovered, 41 per cent. (with tracheotomy the recoveries had been 39 per cent.)

The 78 diphtheritic cases are classified according to age as follows:

0-1	year.	5 cases.	Recovered	I
1-2	"	19 "	"	3
2-3	"	23 "	"	11
3-4	"	12 "	"	3
4-5	"	7 "	"	3
5-6	"	6 "	"	1
6-7	"	3 "	"	0
7-8	"	1 case	"	0
8-9	"	1 "	"	1
11-12	"	1 "	"	0

The 31 idiopathic croup cases are classified as to age:

0-1	year.	2 cases.	Recovered	0
1-2	"	11 "	"	3
2-3	"	8 "	"	4
3-4	"	8 "	"	5
4-5	"	1 case.	"	1
5-6	"	1 "	"	0

A table with a short history of each case is given.

Aldibert, A.: Laparotomy for Tubercular Peritonitis in the Infant. (*Mal. de l'Enf.* Paris, 1892, x., 249.)

In 46 cases there were 4 deaths and 42 recoveries. Of these 9 remained well, after one year and two after two years. This is a mortality of 8.6 per cent. with 91.4 per

cent. recoveries, of which about one-quarter may be considered definite recoveries. The operation itself caused no death. An improvement always followed the laparotomy, even in those cases which afterward did badly. Counting those cases of peritonitis only which were recognized histologically or bacteriologically as tubercular, we have 18 cases with 18 recoveries, of which two remain well after one year, 3 after a-year-and-a-half and 1 after two years, or 6 in 18, or one-third which are assured. These figures prove the curability of tubercular peritonitis by laparotomy. It should be remembered that the operation is not applicable to all forms of tubercular peritonitis for certain of them are beyond surgical resources. Pulmonary tuberculosis does not necessarily constitute a contra-indication. It is above all the rapidity of the progress or the feebleness of resistance of the individual which give contra-indication to the operation. The degree of the lesions appears to be of less importance. Intestinal tuberculosis when the diagnosis was sure would contra-indicate any intervention.

De Gassicourt: Purulent Pleurisy. (*Mal. de l'Enf.*, Paris, 1892, x., 271.)

Report before the Academy of Medicine of 13 cases seen in the past year. Of these 6 had been evacuated by simple puncture; 7 by incision. The indications and contra-indications for puncture were drawn from several sources, the age, the date of the effusion, its origin and its bacteriologic nature. One of these factors alone seems absolute, that is the date of the effusion. Treatment by puncture is only used in empyæmas dating from less than six weeks. Since the chances of recovery are greater when the formation of pus is the more recent, the diagnosis is made as early as possible by the aid of exploratory punctures. The rules which have been adopted for this treatment are: After being assured of the presence of pus by exploratory puncture, the pleura is completely evacuated with the aspirator. Five days after, the presence of pus is again looked for; if there is none a second puncture is unnecessary, the patient is cured. If pus is found, a second evacuation shows the quantity. If it is less by a third, a half, or three-quarters a success may be hoped for. Five days later a third puncture. This is often enough, but if pus remains a fourth puncture almost always completes the recovery. The duration of the treatment is then fifteen days for a maxi-

mum. But if at the second or third puncture the quantity of pus is the same or but little less than at the preceding, it is useless to persevere; it is necessary to recur to the incision without loss of time. In this operation one lavage of sublimate, 1-3000 is used immediately after the incision. Two drains are introduced. Dressings are changed rarely, only when soiled by the pus. As results of this method 13 cases, 10 recoveries, 3 deaths. Of the deaths one was from diphtheria, the two others from tuberculosis in the form of broncho-pneumonia. Of the 10 recoveries, five were treated exclusively by the simple punctures of one, five, ten and fifteen days, five were treated by incisions and the recoveries took place in twenty-one, twenty-two, thirty-eight and forty-five days.

Foltanek, C. (Vienna): Hæmorrhages after Tracheotomy in Diphtheria. (*Jahrb. f. Kinderh.*, Leipzig, 1892, xxxiii., 241.)

Most of the severe hæmorrhages are due to wound complications rather than to ulcerations from decubitus of the tube. The hæmorrhages may be divided into extra-tracheal and intra-tracheal.

1. *Extra-Tracheal Hæmorrhages.*

(a) Secondary hæmorrhages; these occurred once from a branch of vena thyroideus infer., once from the trunk of the same vein; a third case recovered. Death followed in the first case seven hours, and in the second four days, after the hæmorrhage.

(b) Hæmorrhages caused by erosion of the walls of blood-vessels in consequence of ulcerative processes in the walls. The vessels affected were: innominate artery 5 times, branches of the middle and inf. thyroid arteries 1 time, branches of the inf. thyroid arteries 2 times. middle thyroid vein 1 time, inferior thyroid vein 2 times. In two cases the vessel could not be found, as several days had passed since the hæmorrhage, yet it undoubtedly came from the wound. In 16 cases, 8 were quickly fatal, 8 died in a shorter or longer time after the hæmorrhage.

(c) Hæmorrhages caused by changes in the vascular layers of granulation tissue. Two cases. One affected the innominate artery, the other recovered, and it can only be suspected that the inferior thyroid or one of its branches was the vessel concerned.

2. *Intra-Tracheal Hæmorrhages.*

(a) Caused by decubitus of the cannula. Four cases

affected the innominate artery and ended quickly, fatally. Three cases recovered.

(*b*) Caused by ulceration and injury of the lining of the trachea; one case died, one recovered.

It is only in insignificant hæmorrhages that there is time to make out with any clearness the seat of the same. The introduction of a shorter cannula with another curve or the modified Durham's cannula often suffices to stop the bleeding. If the circumstances permitted the attempt should be made to remove the cannula entirely. In a case where the bleeding comes surely from the wound canal, tamponing with tannin-iodoform gauze or a ligature later will be necessary. In cases of the most violent hæmorrhages the relatively great frequency of extra-tracheal origin should be kept in mind and any measure taken to prevent the flow of more blood into the trachea. Recently the following method has been employed in the St. Ann's Children's Hospital with satisfactory results: A somewhat long but thin cannula is kept ready in the diphtheria ward, this is wound with about 20 cm. length of tannin-iodoform gauze of a finger-breadth in width, so that a few inches of the gauze may be left to hang out of the wound. After the removal of the original cannula this tampon cannula is introduced and the wound packed with the tannin-iodoform gauze.

Pollard, Bilton: Ileo-Intussusception; Injection of Water; Laparotomy; Recovery. (*The Lancet*, 1892, ii., 880.)

The child, a boy, aged six months, waking up suddenly, began to scream and vomited; three hours later blood and mucus were first noticed on the diapers, but neither motion nor flatus was passed either then or since. The child was admitted, ten hours after the onset of the symptoms, with a tender but not distended abdomen. Under chloroform, a very distinct sausage-shaped tumor could be felt in the right loin. Three times water was injected by means of a tube and funnel, but as apparently a portion of the intussusception remained reduced, the abdomen was explored through a medium incision. The cæcum was congested and swollen, but there was no intussusception. The little tumor which had been felt was situated at the junction of the ileum with the cæcum. It seemed to consist of the ileo-cæcal valve which was much swollen. The gut was quickly replaced and the wound closed. The child made a quick recovery and was sent home on the thirteenth day after the operation.

Waxham, F. E., (Chicago): Report of Case of Papilloma of the Larynx. Intubation Tube Worn Four Years (*Four. Am. Med. Assoc*, 1892, xix., 477.)

The patient, a boy, aged two-and-a-half years, was seen for the first time July 17, 1888, suffering with great dyspnœa, due to a papilloma of the larynx. Intubation was done and gave complete relief. The tube was removed several times but it was always necessary to reinsert it. In the latter part of July, during the absence of the reporter in Europe, tracheotomy was done on account of some difficulty another physician had in removing the intubation tube. October 21st, the intubation tube was reintroduced and the larynx stretched by gradually increasing the size of the tube, the tracheal cannula being also kept in position. After wearing both tubes for two years, the tracheotomy tube was dispensed with, and the intubation tube alone worn. The boy is now six-and-a-half years old, and as strong and rugged as any boy of his age, but is unable to dispense with the tube. It is hoped that as he reaches puberty and the larynx increases in size, there will be sufficient room for normal respiration, notwithstanding the amount of cicatricial tissue present.

The case is unique on account of the complications, the length of time the laryngeal tube has been worn, and the almost perfect comfort of the patient. He does not complain of pain or irritation of the larynx as the result of its presence. Indeed much less discomfort is experienced than results from the presence of a tracheotomy tube.

White, Joseph A. (Richmond, Va.): Spontaneous Cure of Multiple Papillomata of the Larynx after Tracheotomy. (*Journ. Am. Med. Assoc.*, 1892, xix., 478.)

The patient, a boy, aged five years, suffered with dysphonia and severe attacks of dyspnœa. A laryngoscopic examination showed several small growths of the larynx, located especially on the left cord and ventricular band near the commissure, and also at the inter-arytenoid. In June, 1886, they were removed and their bases touched with chromic acid. In October, they had recurred, but had also extended to the right side. There was also a protuberance on the lower face of the epiglottis. They were again removed, but recurred in a month, and were again taken out with forceps. On January 23, 1887, the dyspnœa became so severe that the child became unconscious. A rapid tracheotomy was done, and after three hours of artificial respiration, this act was carried on

spontaneously, but it was seven hours before he became conscious. The growths were repeatedly removed, but always returned rapidly, so that in March, they projected above the cartilages of the larynx, preventing the epiglottis from closing the latter. They also extended subglottically down to and out of the tracheal opening when the tube was removed to be cleansed. In 1889, no more operations were done, and nothing but a simple astringent spray was used. Under this "do-nothing treatment" he gradually improved and the growths grew smaller so that in April, 1892, he had an almost perfectly normal larynx, with white pearly cords, a small projection on the epiglottis at the seat of the former papilloma and a larger remnant of the growths on the anterior walls of the trachea just below the commissure. The voice is strong and natural, and he breathes well through the larynx, but it is thought safer to keep the tracheal tube *in situ* until the rest of the growth disappears.

The case is especially interesting for several reasons:

1. It is the first case on record of papilloma of the epiglottis.

2. It is the sixth case in literature of spontaneous cure of recurring multiple papillomata of the larynx after tracheotomy.

3. It shows that the tracheal cannula can be worn indefinitely without secondary paresis of the vocal cords or impairment of the voice.

4. The result helps to show the advantage of tracheotomy over thyrotomy in recurring papillomata of the larynx.

Dunn, John, (Richmond, Va.): Contusion of the Eye-Ball; Dislocation of the Lens, with Rupture of its Capsule; Separation of the Iris at its Periphery. (*Va. Med. Month.*, 1892, xix., 581.)

July 15, 1892; Walter J., aged nine, on July 2, struck his eye against the barrel of a toy rifle. Treatment since then had been cold applications and atropia. Condition to-day: Pupil is semi-elliptical in shape, linear above, curved below; atropia dilates only the lower segment; pupil clear, red reflex, except just above the lower border, where, by throwing the light downward, the lower border of the lens can be seen; by throwing the light against the upper part of the pupil, the part of the lens behind the iris can be seen to show considerable haziness; directly above the iris for about three mm. is separated

from its attachments at the corneal junction; into the hole made by this rupture the lens has been forced and is here beginning to be opaque; $V = \frac{4}{200}$; some ciliary irritation, especially marked is this in the neighborhood of the rupture of the iris; tension normal; no pain on pressure; no subjective sensations of pains in the eye; ciliary zone increases when light is thrown into the eye; anterior chamber is deep in its lower half, but almost obliterated over the ruptured iris, showing that the blow had been applied on the lower segment of the ball. No view of the fundus. If there had been any hæmorrhage into the anterior chamber, the blood had been absorbed; no visible rupture of the lens capsule, although lens appears to be swollen where it has been forced through the iris into the anterior chamber. •

July 30th. Distinct ruptures of the lens capsule, centrally along the protruding part of the lens. Considerable absorption of lens substance has taken place, so that the inferior border of lens now occupies central region of the pupil. Circumcorneal zone less deep. No pain; no increased tension.

August 25th. Absorption of lens complete. Dislocated portion of the iris has descended so that its lower part lies just above centre of the pupil, which is still elliptical. No signs of irritation about the eye.

September 8, 1892. Condition of eye as August 8th. V with xi 2 D = $\frac{18}{60}$.

Hupp, John C., (Wheeling, W. Va.): Congenital Absence of the Rectum and Anus. (*N. Y. Med. Jour.*, 1892, lvi., 420.)

On the 17th of September, 1892, Mrs. — was delivered of her second child, which was minus an anal opening, a sphincter ani, and a rectum. An incision in the line where the anus should be was made from the scrotum to the coccyx, and careful dissection made, following up a diminutive cord which was not larger than a small timothy stock, scrupulously avoiding the urethra and neck of the bladder until the peritonæum was reached when upon a careful exploration with the finger, no pouch was discovered. Admonished by the early and high mortality following the establishing of an artificial outlet in cases of this character, further exploration or operation was abandoned, and the artificial canal was filled with iodoform gauze.

A very diminutive retractive penis occupied the upper surface of the abnormally large scrotum. A superabun-

dance of integument occupied the rear portion of the neck, extending toward the back and shoulders. After the first twenty-four hours the child failed to take nourishment; it did not vomit; marked tympanites developed on the third day; on the fourth day there were occasional convulsive twitches; peritonitis, followed by occasional convulsions, closed the child's brief career on the fifth day. No autopsy.

Parrish, B. F.: A New Operation for Paralytic Talipes Valgus, and the Enunciation of a New Surgical Principle. (*Med. Journ.*, N. Y., 1892, lvi., 402.)

His observations and researches led him to believe that in not more than two or three per cent. of the cases where the anterior tibial is paralyzed is the extensor longus pollicis also involved. In cases where the anterior tibial was paralyzed, or so near so that it could not perform its function after careful and prolonged treatment by electricity, massage, etc., the idea occurred to him that the strong extensor pollicis might be able to bear part or all of the burden of its weaker neighbor. Experiments on the cadaver seemed to prove that this principle was correct, therefore on May 15, 1892, the first operation was done. The patient a girl, aged three years and ten months, had infantile paralysis when eleven months old. At the time of operation both tibial muscles of the right leg were completely paralyzed, giving rise to talipes valgus. All the other muscles which had been involved had recovered. The foot could easily be put in the correct position. The extensor pollicis was moderately strong.

Under chloroform anæsthesia, an incision was made over the space between the tendons of the anterior tibial and extensor pollicis muscles, extending from the annular ligament three inches or three-inches-and-a-half upward. Both the tendons were found and isolated. The tendon sheaths were cut away and the foot was inverted and extended so as to shorten up the tendon of the anterior tibial and pull down the tendon of the extensor pollicis. The opposing tendon surfaces were then freshened with the knife and then sewed together with a cat-gut suture for a space of an inch or more, and the wound was closed. The foot was then moulded into the proper position, and retained there by a plaster of Paris bandage, which was worn for a month. It is now too early to state the final outcome of the case.

In some cases a better result may be obtained by cutting off the tendon of the extensor pollicis and sewing it

on to the common extensor of the toes, and then cutting the anterior tendon and uniting the proximal end of the extensor pollicis to the distal end of the anterior tibial, thereby allowing the extensor pollicis only the function of the anterior tibial muscle. In cases where the posterior tibial is also paralyzed it may be necessary to sew its tendon fast to the tendo Achilles. *However, the important principle of grafting tendons and having a live muscle do the work of a dead one* is that which is particularly desired to establish in this article. This live muscle may also do its own work in addition to that of its neighbor, or it may have its original function transferred to still another muscle.

This principle may be used in other deformities, where the muscles of the calf are paralyzed, thus giving rise to paralytic talipes calcaneus. We may sew the tendo Achilles to the tendon of the posterior tibial, provided that muscle is good and strong, or it may be attached to either the flexor longus pollicis or the flexor longus digitorum, with a reasonable hope of materially benefiting the patient. Should the common extensor of the toes alone be paralyzed, its tendons might be grafted to the extensor pollicis, to the anterior tibial or to both. In other cases, too, the principle may be employed.

Lamphear, Emory, (Kansas City, Mo.): Absence of Upper Part of Rectum; Operation; Cure. (*Kansas City Med. Index*, 1892, xiii., 262.)

It was a male child, and, when first seen by the reporter, was one week old. Examination showed a perfect anus, and the lower part of the rectum, a little more than half an inch being normal, but ending in a blind pouch without sign of bowel beyond. An incision was made through the sphincter to the coccyx and dissection made up through the connective tissue to near the promontory of the sacrum. A small sound was inserted into the bladder as a guide. After dissecting upward for about an inch-and-a-half the peritonæum was reached. This was cut into, the sigmoid flexure of the colon easily pulled down and stitched to the upper part of the trace of rectum, an opening about three-quarters of an inch long being made in the side of the bowel with the discharge of an immense amount of fæces. There has been no fever and no peritonitis, and the child is now well and growing nicely.

Davis, B. B., (McCook, Neb.): Three Cases of Tracheotomy. (*Omaha Clinic*, 1892, v., 217.)

The first case was a girl, aged eight years, suffering with membranous croup following diphtheria of the pharynx. At the time of operation the patient was *in extremis*, and artificial respiration was necessary to start the breathing. She made a good recovery, wearing the tube ten days. The second case, a boy, aged five years, was also one of diphtheritic croup. He died suddenly from heart failure three days after the tracheotomy. The last case, a girl, aged four years, had diphtheritic croup, and made a good recovery, wearing the tube fifteen days. The writer did not find the operation always an easy one. Some cases seem easy, but in many instances, it is one of the most difficult operations with which we have to deal. An early operation is advised.

Bibliography.

Traite Pratique de Chirurgie Orthopedique, par le Dr. P. Redard. (Chirurgien du Dispensaire Furtado-Heine, 8 vo., p. 1047, avec 771 figures dans le texte. Paris. Octave Doin. 1892.)

Only words of praise can be written of this last textbook on orthopædic surgery. To be sure, it does not include all that may be desired by the American orthopædic surgeon, for like the work published last year by Dr. Hoffa of Wurzburg, the subject is handled from the European standpoint, and neglects a consideration of the diagnosis and treatment of tubercular joint diseases. Nevertheless, despite the seeming inconsistency, Pott's disease is well and carefully handled.

The first chapter gives a very complete description of all orthopædic appliances now in general use, followed by all the operations now generally made use of to correct deformities.

With the second chapter, the book may be said to properly begin. Torticollis is first considered; then comes Pott's disease, lateral curvature, bow-legs, knock-knee, and club-foot. Other minor deformities find their place, as the writer, beginning at the head, finds his way down to the feet of his subject. The volume closes with a bibliography of eighty-one pages, a most acceptable addition.

J. R.

INDEX TO VOLUME IX.

	PAGE
A.	
Abscess, cerebral, operation, recovery	717
following scalp wound	948
double psoas	193
gluteal, from Pott's disease	285
in hip disease, treatment of	627
of hip, aspiration failed	194
of lung	321
retro-pharyngeal, two cases of ..	943
Abscesses, glandular	165
in Pott's disease	397
of the mammæ	558
Absence of upper part of rectum	959
Acephalorachia, case of partial	696
Acker, Dr. Geo. N.	438, 518
Adams, Dr. S. S.	881
Adenoid vegetations	371, 396, 480, 917, 943
Air passages, foreign bodies in	239
Albuminuria in scarlatina	706
Alopecia areata in an asylum	595
of the entire scalp	840
American Pediatric Society	392, 528
Anæmia of tuberculosis	801
splenic	710
Anders, Dr. Howard S.	59
Aneurism of the aorta	636, 939
Angina	143, 228
Ankle, tubercular osteitis of	286
Ankle-joint, observations on disease of	550
Antipyrin in whooping cough	543
Anus, two cases of original, operated upon	289
Aphorisms from A. Jacobi, M.D.	102, 117, 254, 274, 329, 498, 594, 693
Apoplexy, embolismal	290
Appendicitis, late operation, recovery	138
notes of two cases	137
premonitory accidents of	159
removal of appendix	240
report of case	319

	PAGE
Aprosexia and headache in school children	383
Arteritis, general, with narrowing abdominal aorta.....	638
Ascitic fluid, milky	932
Asphyxia neonatorum.....	62, 923
Aspiration, emphysema following.....	600
Atropine and homatropine eye drops, unusual effects of.....	923

B.

Bacteria, intra-uterine transmission of.. ..	309
Baldness, an epidemic of, in spots.....	595
Balanitis.....	799
Ballantyne, Dr. J. W.....	275
Bile-ducts, congenital obliteration of.....	461
Bismuth subnitrate as dressing for cord	549
Bleyer, Dr. J. Mount.....	207
Blindness, temporary, after fracture in occiput	477
Booker, Dr. W. D.....	183, 641
Bowel, acute internal strangulation of.....	556
troubles.....	386
Bradford, Dr. E. H.....	508
Bromoform in whooping cough.....	711, 854
Bronchial glands, hypertrophy of.....	933
Bronchitis, diagnosis of acute.....	556
Broncho-pneumonia.....	141, 862
Broncho-stenosis, syphilitic.....	830
Brown, Dr. C. W. M.	62
Dr. Dillon.....	195, 433
Bushong, Dr. Charles H.....	696

C.

Caillé, Dr. Augustus.....	357, 570
Calculus, vesical, female child.....	477
negro boy.....	59
Campbell, Dr. W. A.....	511
Cancrum oris.....	152, 945
Carbohydrates.....	65
Carpenter, Dr. George.....	915
Carbolic acid, case of poisoning by, recovery	922
Catarrh, importance of early treatment.....	940
Casts, diphtheritic, of larynx, trachea and bronchi.....	36
two tracheal and bronchial.....	683
Catarrh, infantile.	929
Cellulitis, prolonged subcutaneous.....	876
Cerebellar tumor, case of.....	145
Cerebral abscess, operation, recovery.....	717
atrophies.....	547
paralysis, three cases of.....	547
Cerumen, symptoms produced by.....	635
Cervical spondylitis, four cases.....	694

	PAGE
Chloroform, deaths from.....	450, 630
restoration from syncope of	799
Chorea, acute, with fatal endocarditis.	467
case of, in a negro boy.....	927
secondary microbic inspection.....	454
transmission of from dog to dog.....	533
Choreiform experimental production of.....	793
Christopher, Dr. W. S.....	561, 756
Circumcision.....	876
Cirrhosis, hepatic	861
Club-feet.....	721, 907
Convulsions.....	610, 856
Cornea, disturbances of nutrition and sensibility of.....	857
Conjunctiva, fatal hæmorrhage after scarification.....	471
Conjunctivitis, diphtheritic.....	926
Contagious diseases, obligatory declaration of.....	379
Craniectomy	553
Cranium, compound comminuted fracture of.....	77
Cretinism, case of sporadic.....	825
Croup, membranous.....	465, 511
treatment of.....	534, 631, 854
Crying and its significance.....	543
Cyanosis due to narrowing of the pulmonary artery	289

D.

Dentition.....	232, 791, 925
Dermatitis following use of quinine.....	197
Dessar, Dr. Leonard A.....	371
Diabetes insipidus.....	860
mellitus.....	794
Diarrhœa.....	860, 931
classification of summer	865
dietetic management of.....	357
treatment of.....	854, 924
under two years.....	520
Digestive troubles, ætiology of acute	151
Diphtheria.....	385, 927, 933
and creosote.....	141
and true croup.....	636
appearances of nervous symptoms.....	471
arising from faulty drainage.....	704, 791
bacillus of, in secretions of mouth.....	925
cardiac complications of	387
case of, or croup in Central Africa.....	146
causes and prevention of.....	449
certain microbic associations in.....	233
constitutional treatment in.....	216, 472
contributions of 1891 to knowledge of.....	133

	PAGE
Diphtheria death from embolism basilar artery.....	937
discussion on.....	382
distribution of in Massachusetts.....	455
forms of.....	662, 672
from rags after nine years.....	543
hemiplegia and aphasia following.....	940
indications for treatment.....	455, 463, 464
laryngeal in enteric fever.....	859
Loeffler's bacillus.....	555
management of.....	211, 465
nasal.....	389
new precautions against.....	380
on contagion of animal to man.....	381
outbreak of, coincident with febrile eruption in cows.....	542
oxygen in.....	634
relation of, to the anginas.....	641
reviews of latest Paris treatment of.....	220
period of isolation of convalescent from.....	466
polymorphism of.....	868
spread of.....	454
submembranous injections in.....	103, 217
therapeutics of.....	544
tracheotomy, delayed removal of tube.....	913
treatment of.....	70, 230, 390, 462, 463, 473, 540, 541, 852, 854, 865
surgical.....	478, 714
mem. croup and laryngeal.....	705
conjunctivitis.....	926
Diphtheritic degeneration of the nerves.....	234
paralysis, treatment of.....	381
Diphtheritics, reaction for glucose in the urine of.....	635
Disinfection, quarantine and.....	213
Dura mater, case of glio-sarcoma of.....	936
Dysentery, case of ulcerative catarrhal.....	183

E.

Ear, case of congenital malformation of.....	236
Earle, Dr. Chas. Warrington.....	181, 579, 699, 734
Eczema, impetiginous face and scalp.....	232
Eczemas, dietetic consideration of.....	933
Edwards, Dr. W. A.....	200
Elbow-joint, after-treatment of injuries at.....	435
Emphysema.....	548, 600, 611
Empyæma.....	153, 203, 291, 349, 411, 441, 560
Endocarditis, acute chorea with fatal.....	469
Enteric fever.....	466, 470, 859
Epidemic diseases, declaration of.....	546
Epilepsy.....	44, 386
Epiphyses, cases of injury to the.....	80

	PAGE
Epiphysitis, acute.....	716
Erbach, Dr. Amelia.....	197
Extremities, symmetrical gangrene of both.....	718
Eye-ball, contusion of.....	956
Eyes, faulty position of the head and neck due to the.....	640

F.

Feeding, methods of forced.....	214
sterilized milk.....	524
Fell, Dr. Geo. E.....	342
Femora, congenital luxation of.....	721
Femur, malignant tumor of.....	877
subcutaneous osteotomy of.....	299
Fever, typhoid.....	731, 734, 756, 858
Fibula, fracture of, by muscular contraction.....	237
Fœtus, determination of sex of the.....	551
Food, infants.....	67
Forchheimer, Dr. F.....	330
Foreign bodies in air passages.....	239, 394, 397, 715, 798
pharynx.....	479, 715
Fracture, depressed, operation, recovery ..	395, 475, 715, 947
occipital region.....	477
united, of the long bones.....	476, 947

G.

Gangrene, symmetrical of both extremities.....	718
Gastritis, croupous, two cases.....	489
Gastro-enterocolitis, chronic infantile.....	388
Gastrostomy, restoration.....	800
Gavage in treatment of persistent vomiting.....	85
Genital fissure, cellular atresia of the.....	431
Gibney, Dr. V. P.....	191, 284, 911
Glycosuria, dietetic.....	780
Goodhart's address.....	69
Growth	379, 535
Gums, formula for painful.....	227

H.

Hæmaturia.....	391
Hæmoptysis	712
Hand, polydactylous.....	946
Heart, congenital malformation of.....	22
disease of.....	467, 471, 554
hypertrophy and dilatation of.....	458
murmur.....	40
special features of its affections.....	796
Hemiatrophy of the face, case of.....	709
Hemiplegia complicating otitis media.....	518

	PAGE
Hæmorrhage, fatal after scarification conjunctiva.....	471
gastro intestinal.....	231
in the new-born.....	75
supra-renal.....	842
Hepatic cirrhosis.....	795, 860
syphilis.....	456
Hernia, diaphragmatic.....	130
laparotomy for congenital umbilical.....	75, 714
radical cure of.....	156
tubercle in sacs of.....	716
Herpes zoster.....	459
Hiccough, treatment of.....	635
Hip disease.....	131, 191, 192, 194, 622, 448
congenital dislocation at the.....	604 911
Hip-joint, disease of.....	303, 475, 550, 559
expectant treatment of.....	944
Holt, Dr. L. Emmett.....	128, 263, 280, 349
Howard, Dr. Wm. Travis, Jr.....	22
Huber, Dr. F.....	203, 321, 431, 600, 683 891
Hydrocephalus, case of chronic internal.....	773
contribution to surgical treatment of.....	718
due to hereditary syphilis.....	455
paroxysmal clonic spasm in.....	793
Hydrorhachis.....	721
Hydrogen peroxide.....	76, 899
Hygiene of school life.....	69
Hysterectomy, case of.....	508
Hysteria.....	460

I.

Ice in treatment of diphtheritic angina.....	143
Icterus.....	231, 391
Idrosadenitis, dissiminated suppurative.....	936
Indigestion, convulsions due to.....	610
papoid in.....	704
Infants, airing and exercise of.....	451
statistics of Paris, placed out to nurse.....	226
Influenza, hyperpyrexia in.....	710
hysteria following.....	460
influence of an epidemic of.....	226
intertrigo, ulcerative.....	915
Intestine, abnormality of.....	720, 943
congenital obliteration of.....	557
obstruction of, from plastic peritonitis.....	639
Intubation in Italy.....	77
of the larynx.....	397, 474, 526, 558, 951
versus tracheotomy.....	849, 944
Intussusception.....	479, 556, 954
Iris, cyst of the.....	950

J.

	PAGE
Jackson, Dr. Henry.....	255
Jacobi, Dr. A.....	135, 721, 899
Dr. M. Putnam.....	118
Jaundice.....	384
Jones, Dr. Robert.....	131, 205, 375, 435, 694, 845

K.

Kerley, Dr. Chas. G.....	85
Knee, old deformity of, after osteitis.....	285
relapsing tubercular osteitis of.....	286
Knee-joint, diseases of the.....	361, 550
Koplik, Dr. Henry.....	411, 662, 780

L.

Lactation, case of infantile.....	930
La grippe.....	181, 579
Laminectomy for spinal caries.....	716
Laparotomy.....	75, 799, 951
Laryngeal growth, case of.....	879
Laryngismus stridulus.....	864, 881
Laryngitis, severe catarrhal.....	128
Larynx, foreign bodies in.....	433, 715, 942
stenosis of.....	397
syphilitic.....	195, 433
thyrotomy for papillomata of.....	397
Lithotriety.....	798, 880
Liver, case of acute yellow atrophy of.....	925
Lumbrici, immense number of.....	932
Lung, abscess of.....	321
gangrene of.....	469

M.

Maculæ luteæ, symmetrical changes of.....	637
Madden, Dr. Thos. More.....	401
Malaria, treated by methylene blue.....	928
Mammæ, abscesses of the.....	558
Maternities, artificial	224
Maxilla, excision of condyle and neck....	554
Measles and scarlet fever in same patients.....	287
German.....	699
intercurrent attack of, curing diabetes insipidus.....	860
menstruation during.....	709
paralysis following.....	389, 708
Meierhof, Dr. E.....	616
Melæna neonatorum, etiology of.....	934
Meningitis.....	148, 150, 393
Microcephalus, operation, death.....	877
Microglossia, congenital.....	548

	PAGE
Milk.....	545
Monstrosity.....	878
Morse, Dr. John L.....	913
Mumps, incubating period of.....	792, 862
Myositis ossificans, case of.....	158
tubercular.....	147

N.

Nævi.....	38
Nasal ulcerations.....	73
Naso-pharynx, adenoids of.....	396
Nephritis, chronic.....	255
epidemic.....	457
latent.....	389
not recognized before autopsy.....	917
scarlatinal.....	241
two cases of acute primary.....	261
Neuroses, starvation...	561
New operation for paralytic talipes valgus.....	958
Noma.....	636
Northrup, Dr. Wm. P.....	I, 130, 287, 731
Nose and pharynx, common affections of.....	616
Nursing bottle.....	377

O.

Observation, on pulse, respiration and temperature.....	448
O'Dwyer, Dr. J.....	30
Oesophagus, foreign body in.....	715
Ophthalmia neonatorum.....	459, 858
Orbital hæmorrhage.....	398
Osler, Dr. Wm.....	81, 481
Otitis media.....	315, 518, 938
Ouabaine in whooping cough.....	453
Ovarian cysts.....	398, 720, 946
Ozone, value of nascent.....	570

P.

Palate, cleft.....	78
Palsy, birth.....	553
Papillomata of larynx.....	875, 955
Papoid.....	740
Paralysis, curability of syphilitic pseudo.....	309
following measles.....	389, 708
infantile, three cases.....	375
posticus.....	391
pseudo-hypertrophic.....	552
strychnia in spinal.....	35
surgical aspect of.....	876
three cases of cerebral.....	547
treatment of.....	538
diphtheritic.....	381

Paralytic talipes, new operation for.....	958
Parotiditis, infectious	518
Patellæ, congenital absence of both.....	719
Peliosis rheumatica.....	935
Pericardial effusion	392
Pericarditis, mediastinal, two cases....	467
Peritonitis, general, operation, recovery..	718
surgical treatment of tubercular.....	320, 951
Pharynx, foreign body in.....	479
adenoid growths of the	917
Pleurisy, treatment of purulent.....	553, 952
Pneumonia, case of, three dangerous crises.....	118, 135
croupous.....	499
gangrene following.....	469
points in history and pathology	419
remarkable respiration record in.....	400
Poliomyelitis, acute anterior.....	938
Potash, fatal case of poisoning by chlorate of.....	543
Pott's disease.....	558, 799
Prurigo, urticaria and.....	868
Pulmonary percussion note.....	211
Purpura hemorrhagica.....	931
Putnam, Dr. Charles P.....	595
Pylorus, hypertrophy of.....	390
Pyosalpinx, case of double.....	476

Q.

Quarantine and disinfection..	213
Quinine, subcutaneous injection of.....	380

R.

Rachitis, French medical treatment of.....	539
in Australia.....	383
phosphorus in treatment of.....	71
primary dentition in its relation to.....	791
unique case of	638
Rachford, Dr. B. K.....	801
Radcliffe, Dr. S. J.....	419, 610
Ranula.....	520
Rash, pigmented vesicular.....	863
Rectum, congenital absence, treatment of prolapse of the....	143, 957
ulceration of the.....	438
Rectum, absence of upper part.....	959
Renal, supra-hæmorrhage.....	842
artificial, in asphyxia neonatorum.....	923
Respiration, forced.....	342
improved method of performing.....	30
remarkable, record.....	200
Respiratory passages, anatomy of the	442

	PAGE
Retinal disease, symmetrical.....	639
Rheumatism, gonorrhœal.....	534, 933
Rhinitis, etiology of pseudo-membranous.....	934
Ridlon, Dr. John.....	131, 205, 375, 435, 604, 694, 845
Ringworm.....	69, 550
S.	
Sacro-coccygeal tumor.....	891
Sarcoma of buttocks.....	948
Salt.....	65
Scarlatina, auto-infection in.....	630
epidemic Bright's and.....	457
observations on albuminuria in.....	706
outbreaks of, and febrile eruptions in cows.....	542
sine exanthemata.....	708
Scarlet fever, abnormal short incubation of.....	545
measles and, in same patient.....	287
methods of accelerating desquamation in.....	313
relapse of.....	314
veratrum in.....	923
School children, aprosexia and headache in.....	383
life, physical education in relation to.....	401
Scorbutus, American cases.....	I
Scrofula, general treatment for.....	538
Scurvy, orbital hæmorrhage in course of.....	398
two cases of.....	312
Seibert, Dr. A.....	103, 830
Seven, observation on the number.....	227
Shepherd, Dr. Francis J.....	55
Skull, fractured.....	395, 475, 551, 715
Sleep, observations on.....	379
Smith, Dr. J. Lewis.....	241, 672
Soxhlet's apparatus, modification of.....	63
Spastic, congenital, rigidity.....	867
Specialism, remarks on.....	481
Spina bifida.....	210, 395, 942
Spinal caries, laminectomy for.....	716
Spleen, hypertrophy of.....	794, 857
rupture of.....	275, 931, 941
Splenic anemia.....	710
Spondylitis, simulating scoliosis.....	205
six cases of.....	845
Starvation neuroses.....	561
Stomatitis, aphthous.....	330, 459
Strontium, salts of, in tænia.....	546
Struma, case of congenital.....	548
Sulphurous acid in whooping cough.....	711
Sympson, Dr. E. Mansel.....	499, 840
Syphilis, lesions characteristic of.....	928

T.

PAGE

Tænia, salts of strontium in.....	546
Talipes, calcaneus.....	284
equino varus.....	719
Teeth and growth from	535
congenital absence of.....	792
Terebinthinæ, oleum, in croup.....	854
Testicle, tuberculosis of.....	30
Testis, tubercular disease of coverings of.....	460
Tetanus, cases of	549, 878
Thomson, Dr. John.....	773
Three cases of tracheotomy.....	959
Thrombosis, superior longitudinal sinus.....	713
Thyme in whooping cough.....	227
Thyrotomy	478
Tibiæ, acute necrosis of.....	554
Tonsils, function of the.....	305
rare affection of crypts of the.....	862
treatment of hypertrophied	452
Tonsillitis, case of tracheotomy.....	877
contagiousness of acute.....	306
Tooth-brush, advise use of.....	207
Torticollis ..	238, 719
Townsend, Dr. Chas. W.....	825
Dr. W. R.....	907
Trachea, foreign bodies in.....	394, 397, 948, 953
Tracheotomy.....	141, 474, 556, 797, 798, 879, 949
versus intubation.....	797, 848
Tracheotomy, three cases of....	960
Trachoma, surgical treatment of.....	945
Tube, simple and economical tracheotomy.....	639
Tubercle of herinal sacs.....	716
Tuberculosis, acute.....	785
anæmia of	801
clinical forms of....	809
disturbances of cornea in meningeal.....	857
etiology and prophylaxis of.....	144
general.....	280
heredity of.....	234
laryngeal.....	473
of the testicle.....	307
primary infection in bronchial lymph nodes.....	71
prophylactic treatment of.....	307
Tuley, Dr. Henry E.....	842
Tumor, intra-cranial.....	552
Typhlitis.....	864

U.

PAGE

Ulcer originating in a burn healed only by antisyphilitic treatment	441
Umbilical cord, bismuth as a dressing	549
fæcal fistula	55, 640
hernia, laparotomy	75
Urethra, absence of, operation, cure	713
Uric acid diathesis	705
Urine, incontinence of	857, 924
latent nephritis, with suppression of	389
of tuberculous, treated by Koch's lymph	924
Urticaria and prurigo	868

V.

Vaccination, re-, during 1891	377
treatment of whooping cough	546
Varicella, second attack of	392
Veratrum in scarlet fever	923
Vocal mechanism, functional disorders of	317
Vomiting, gavage in persistent	85
Vulvo-vaginitis	480, 948

W.

Warner, Dr. Frederic M.	785
Water, value of	65
Waxham, Dr. F. E.	526
Whitman, Dr. Royal	361
Whooping-cough, antipyrin in	543
observations on	711
ouabaine in	453
recurrence of	458
thyme in	227
treatment of	454, 536, 854
by vaccination	546
Wilson, Dr. H. Augustus	299, 622
Wollstein, Dr. Martha	489
Wry-neck, congenital	81, 157, 874



RJ
1
A8
v.9

Archives of pediatrics

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